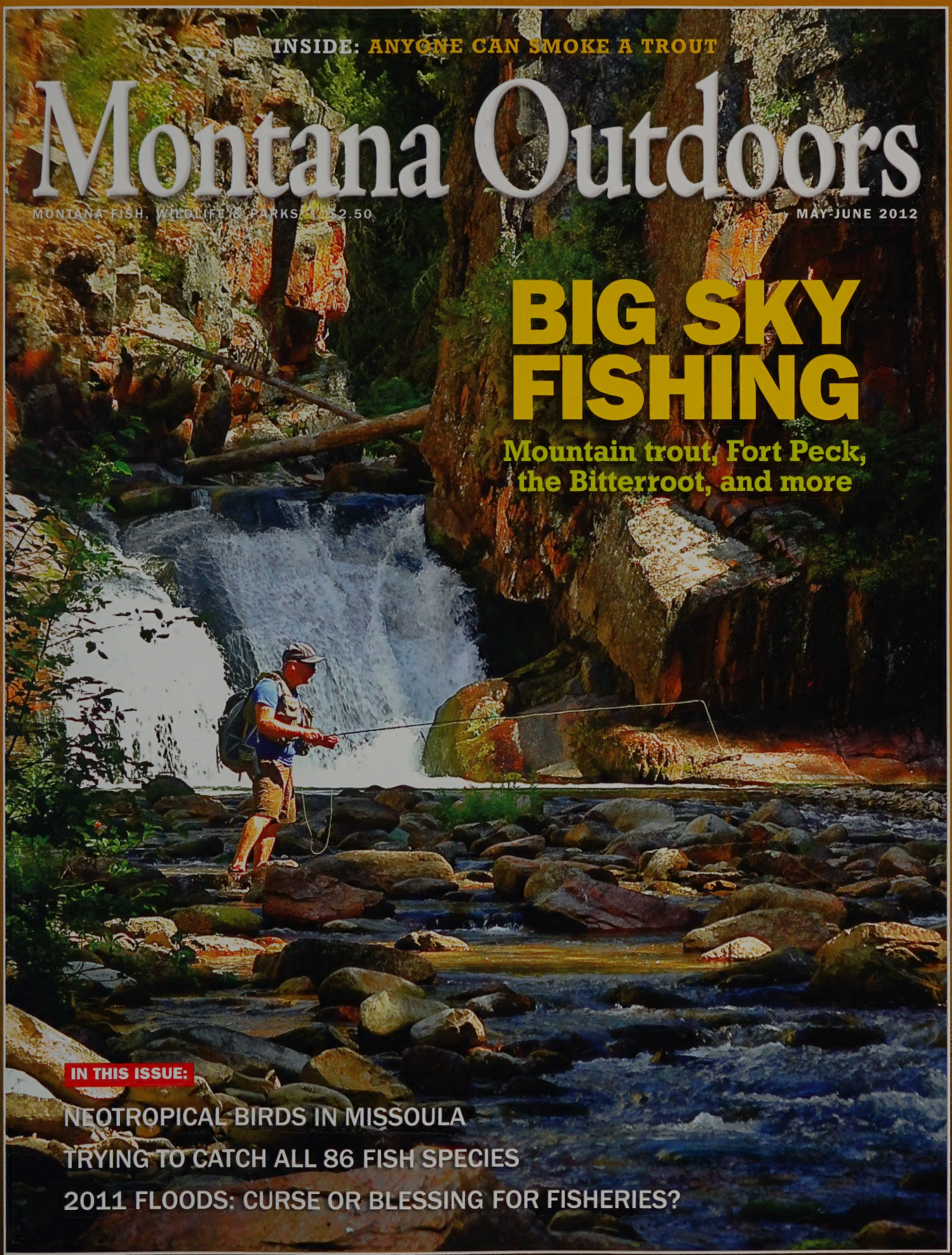

INSIDE: ANYONE CAN SMOKE A TROUT

Montana Outdoors

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MAY-JUNE 2012

BIG SKY FISHING

Mountain trout, Fort Peck, the Bitterroot, and more

IN THIS ISSUE:

NEOTROPICAL BIRDS IN MISSOULA

TRYING TO CATCH ALL 86 FISH SPECIES

2011 FLOODS: CURSE OR BLESSING FOR FISHERIES?

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Montana Outdoors

MAY-JUNE 2012

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16 Aiming for 86 Each in his own way, a schoolboy and a retiree are trying to catch as many of Montana's different fish species as possible. *By Nick Gevock*

20 The River that Does It All Despite booming residential development and growing angling pressure, the Bitterroot continues to provide superb trout fishing while maintaining pristine coldwater habitat for imperiled native fish. How long can that last? *By Daryl Gadbow*

28 The Water Is Up, and Peck Is Back When water filled Fort Peck last year and flooded its shorelines, a storehouse of nutrients washed into the reservoir. That triggered an ecological chain reaction, creating some of the best fishing in years for walleye, northern pike, smallmouth bass, and other species. *By Andrew McKean*

36 High-Altitude Trout What backpackers and hikers have discovered about the state's fish-rich alpine lakes. *By Mike Raether*

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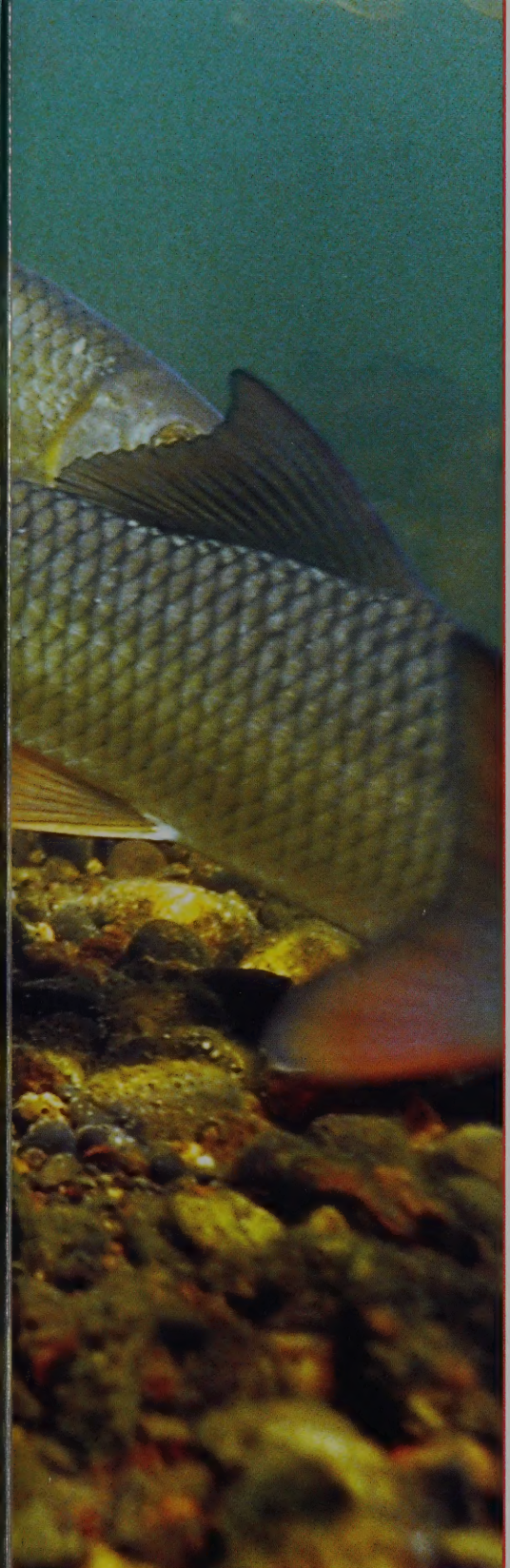

CLEAN GRAVEL Shorthead redhorse are just one native species that benefited from the 2011 floods. See page 10 to learn how high water helped—and sometimes hurt—Montana's lake and river fisheries. Photo by Eric Engbretson.

FRONT COVER Belgrade photographer Joshua Bergan hiked 4 miles into a steep canyon near White Sulphur Springs to find this hidden trout stream and waterfall.

The mysterious mower

While reading the article "Love Birds" (March-April), I had to laugh at the section on ruffed grouse. For years when I went to the Beartooth Wildlife Management Area I would always wonder why the maintenance guy couldn't get his lawn mower started. Finally one day a wildlife manager informed me the sound was a ruffed grouse off in the woods. I was embarrassed, but now I know I'm not the only person who thinks a drumming ruffed grouse sounds like a lawn mower starting up.

Ellen Bryson
FWP Human Resources, Helena

Love Birds
Spectacular springtime courtship displays of 12 Montana species
By Ellen Horowitz
Sandhill crane

What next: "black-bear"?

I am puzzled as to the reason for the hyphen in pygmy-owl in *Montana Outdoors* (Outdoors Portrait, November-December 2011). It appears to be yet another example of literary license taken at the expense of the English language. Are we now to have whitetail-deer, black-bear, and blue-grouse? The list is endless. A few years ago, the apostrophe in "Pompey's Pillar" was dropped, probably at the whim of some bureaucrat. There should be an apostrophe there, yet it is absent, which should be the case with the hyphen in pygmy-owl.

Michael R. Clark
Billings

Tom Dickson replies: I agree that animal names can be puzzling; I've been struggling to keep them straight for years. Why is it one elk and two elk, yet one mouse and two mice? And what about more than one bear? Some people say "two bear," while others will go with "two bears." A white-tailed deer has a hyphen and an "ed," yet a smallmouth bass lacks both.

Animal names sometimes change in response to new social norms or scientific knowledge. Squawfish is now pikeminnow in deference to American Indian sensibilities. Blue grouse recently became dusky grouse after scientists learned they are two separate species. Sage grouse became sage-grouse a few years ago for reasons I've yet to learn. The same is true for the hyphen in pygmy-owl. (Readers: any suggestions?)

Fish and wildlife aren't the only nouns to undergo change. "Lifestyle," for instance, was originally two separate words. Then it became hyphenated and eventually combined to become the single word we now use.

As for Pompeys Pillar, the proofreader for the Montana Department of Transportation highway map tells me the standard style for all place names is to omit the apostrophe. According to the Montana Historial Society, Nicholas Biddle, the first editor of the Lewis and Clark journals, listed the site as "Pompeys Pillar," with no apostrophe. The missing punctuation may be grammatically incorrect, but at least it's consistent.

Fortunately, other than being a minor annoyance, incorrect or inconsistent punctuation usually causes no harm as long as readers still know what's being said. A much bigger problem is unclear, confusing, or contradictory writing. Even worse is when writers use weaselly words or passive voice to intentionally avoid clarity and dodge responsibility.

I'll take a few extra hyphens or dropped apostrophes over that any day.

Photo fans

We've been subscribing to *Montana Outdoors* for several years, and I have to say that this year's January-February photography issue is by far the best you've done. The photographs are superb, and you folks did a fantastic job with layout. We also subscribe to similar magazines from other states. *Montana Outdoors* consistently puts them to shame in terms of quality of content and photography.

Mike Clark
Parker, CO

I am a second-year subscriber to your magazine and continue to be impressed by the excellent photography in every issue. In the November-December 2011 issue, on pages 4 and 5, I was awed by photographer Mark Miller's shot of a train rolling through the grasslands with the Crazy Mountains in the background. I have relatives in Big Timber and always look forward to my trips "out West." The initial sight of the Crazies as I approach from the east never gets old. They were the first mountains I had ever seen when our family made a trip from Minnesota back in 1969. I was only ten, but I'll never forget the first time I saw that beautiful mountain range.

Doug Larson
Plymouth, MN

"Disappointed" is a word I just can't use when describing your excellent magazine, so let me put it this way: As an amateur photographer, I would have been "even more pleased" if you would have included in this year's photo issue the photographer profiles and insights you added last year. Your photos are top notch, sometimes breathtaking, and always inspiring. Still, I missed the commentary which, in several cases last year, made me realize that photos of such caliber are within my reach. So keep up the good work—but not the secrets.

Bill Billand
Montville, NJ

Tom Dickson replies: Readers were mixed in their responses to last year's photo issue. Some enjoyed the photographers' tips and stories. Others said they would have preferred less text and more images. We're keeping the idea alive for a future photo issue.

Write to us

We welcome all your comments, questions, and letters to the editor. We'll edit letters as needed for accuracy, style, and length. Write us at Montana Outdoors, P.O. Box 200701, Helena, MT 59620-0701. Or e-mail us at tdickson@mt.gov.

Hardwood-Smoked Trout

Prep Time: **1 to 2 hours** | Cook Time: **1 to 2 hours**

Last year a neighbor invited me to use his electric smoker. Though I had never before tried smoking meat or fish, it was far easier than I imagined. I've since smoked pheasants, goose breasts, and venison with great success.

The best results have been with brown-sugar–brined trout. One day while returning from my neighbor's house with a plateful of freshly smoked rainbow trout fillets, the aroma became irresistible. I sampled one piece, then another. By the time I got home (just one block away), the entire plate was empty.

I've experimented with several ways to prepare and smoke trout. The best method comes from 3men.com, an award-winning meat smoking and barbecue website maintained by three friends who share a passion for well-cooked meat. They use various electric smokers; a standard Weber kettle grill can work too (see 3men.com, virtual weberbullet.com, or other barbecue websites for details).

I mainly smoke trout over 19 inches long. These are large enough to fillet so I can produce boneless smoked fish. The method described here also works for smaller whole trout and other species. Whatever the size, be sure to use fresh fish.

I learned how to fillet a trout and remove its pin bones by watching instructional YouTube videos. If I can do it, anyone can. Don't worry if, after filleting, you end up with several small pieces; they'll smoke up fine.

—Tom Dickson

PHOTOS: ISTOCKPHOTO.COM

BRINING

Brining is the process of soaking meat or fish in a saltwater solution to add moisture and flavor. It's essential when smoking fish, which otherwise become too dry and jerkylike.

Not even food scientists are entirely sure how brining works. It has something to do with salt entering the fish's flesh and changing the structure of cells and proteins to retain moisture during cooking. Brining makes the fish slightly salty, but not overly so. Additional flavors such as sugar are often added to enhance the taste.

BRINING INGREDIENTS

For up to 2 lbs. of fish or fillets

½ gallon water (preferably bottled), room temperature
1 C. salt (preferably Kosher)
½ C. brown sugar
3 T. lemon juice
1 t. onion powder
1 t. allspice
1 t. ground pepper

Mix ingredients in a glass or ceramic container until thoroughly dissolved.

Place fish in brine, ensuring all pieces are completely submerged. Put dinner plates on top of fish or fillets to keep them underwater.

Refrigerate for the following time:

Weight of each* piece of fish or fillet	Time**
¼ lb. to ½ lb.	45 min.
½ lb. to 1 lb.	1 hour
1 lb. to 2 lbs.	2 hours

* Total weight is irrelevant
** For skin-on fish, increase time by 25%

Remove fish from brine, lightly rinse in cold water, and pat dry.

Place fish on lightly oiled bakers racks. Elevate racks in front of a fan. Dry for one hour to produce a thin glaze, called a pellicle, on the fillet. This makes the smoked fish tastier, firmer, and more attractive.

SMOKING

Check the Internet for details on the type of smoker you plan to use. If you lack a smoker, ask friends or coworkers if they have one you can borrow. (I offer part of my smoked fish in exchange.)

Hardwoods such as alder, apple, oak, and cherry—all sold commercially as chips—work well for smoking fish. Remember that a little wood goes a long way. Too much smoke will make the fish taste bitter.

Smoke at 190 degrees:

Weight of each* piece of fish or fillet	Time**
¼ lb. to ½ lb.	1.25 hours
½ lb. to 1 lb.	1.5 to 2 hours
1 lb. to 2 lbs.	2 to 2.5 hours

* Total weight is irrelevant
** For skin-on fish, increase time by 25%

Fish are done when they flake easily with a fork or when the internal temperature reaches 140 degrees.

Remove and elevate racks so fish can cool for 30 minutes. Wrap in foil and place in a ziplock-type bag to refrigerate or freeze.

Serve flaked as an appetizer. Or mix 8 oz. smoked trout with 5 T. sour cream, Greek yogurt, or crème fraîche, along with 3 T. chopped chives. Spoon onto thin-sliced baguettes or into an omelet.

Eastern Montana's Great Fishing

My only "problem"—if you can call it that—with liking so much about the outdoors is finding the time to enjoy all the activities. It's something I wrestle with every year. One activity that calls to me each spring—especially when mountain runoff makes my favorite trout streams unfishable—is eastern Montana angling.

Yes, I'm partial to fly-fishing small streams for cutthroats, browns, and rainbows. But put me in a boat on a sunny May afternoon, hand me a spinning rod, set a cooler of iced beverages within arm's reach, and I'm one happy angler. Throw in the trolling motor's soothing drone, the gentle rocking of the boat, and some friendly conversation, and I'm in heaven.

Opportunities for such enjoyable days on the water abound in eastern Montana. In this issue of *Montana Outdoors*, *Outdoor Life* editor and Glasgow resident Andrew McKean details the fantastic fishing that Fort Peck Reservoir is producing these days. Thanks to the high water of 2011 that flooded vegetated shorelines and washed loads of nutrients into the reservoir, an already superb fishery has become even better.

As McKean says: Go now.

In your haste to fish Fort Peck, don't forget all the other great waters in the state's eastern half. There's also Nelson Reservoir near Malta, where more state record fish have been caught than anywhere else in Montana. It's a superproductive fishery filled with large northern pike, perch, walleye, and an assortment of lesser known species (including massive bigmouth buffalo).

The lower Yellowstone River from Billings to the North Dakota border is another premier warmwater fishery you don't read about too often. In addition to sauger, walleye, and northern pike, the longest undammed river in the lower 48 states also offers freshwater drum, shovelnose sturgeon, and channel catfish.

If you don't have a boat, head to the mouth of the Milk River just east of Glasgow. Many fish congregate where this tributary spills into the Missouri a few miles below Fort Peck Dam. It's best known for channel catfish, but anytime between now and mid-June an angler could hook shovelnose sturgeon, sauger, northern pike, or even blue suckers.

Another great confluence is where the Marias, Teton, and Missouri Rivers come together, about 50 miles northeast of Great Falls. Though technically not in eastern Montana, it's a great place for shore anglers to catch sauger in May, and, later in summer, pike, smallmouth bass, and even a few resident browns and rainbows. It's also one of the closest places for western Montana anglers to get their annual warmwater fix.

On the FWP Fishing Guide page (fwp.mt.gov/fishing/guide/), learn about other eastern Montana fishing opportunities such as at Fresno Reservoir, Tiber Reservoir, Medicine Lake, and the Musselshell River.

Put me in a boat, hand me a spinning rod, and I'm one happy angler.

Anyone who enjoys warmwater fishing should visit Tongue River Reservoir State Park, home of the state's top crappie fishery. The best fishing is generally in mid-May, when anglers in boats and on shore regularly catch these tasty panfish. It's hard to imagine anything tasting better than a plateful of fried batter-dipped crappie fillets.

Maybe the thing I like best about angling for warmwater fish is that it's relaxing. Fly-fishing for trout requires so darn much concentration. But with warmwater fishing you have more chances to visit with friends, share stories, and take in the surroundings.

That's not to say it's always paradise. One time our outboard caught fire and we had to spend an entire night on the lake before getting a tow back to shore. It wasn't so bad, though. Often the best time to catch walleye is after dark. After lowering the anchor, we passed the long hours fishing and swapping tales of past adventures.

That's the thing about fishing. When it's good, you've got a great day to remember. And even when things go wrong, such as your motor going up in flames, well, that just gives you another good story to tell on the next fishing trip.

—**Joe Maurier**, Montana FWP Director

NELSON KENTER

Fishing at sunset on Fort Peck, one of many great fishing spots in eastern Montana.

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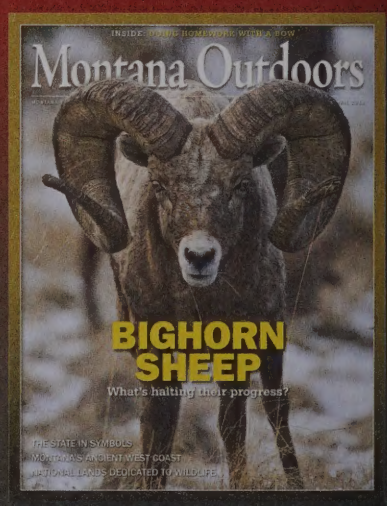

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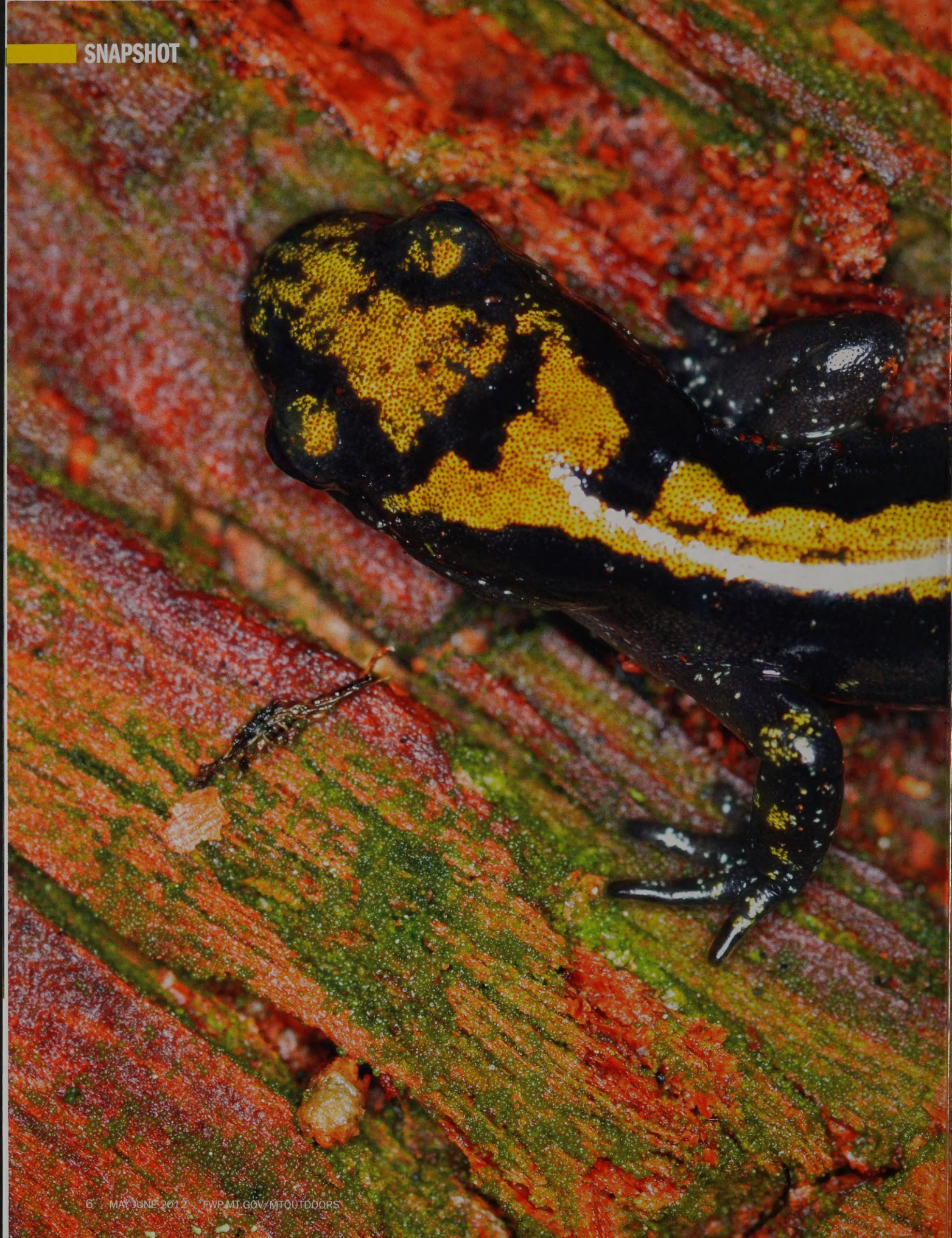
JESSE LEE VARNADO

Net Repair

CHRIS HURLEY
Fisheries technician, Canyon Ferry Reservoir

EVERY APRIL AND MAY we put these Merwin trap nets out on the south end of Canyon Ferry to survey spawning walleye that move into the shallows. The goal is to catch, tag, and then release as many walleye as possible. The surveys give us an idea of which age-classes have reached larger spawning size. And anglers who catch the tagged fish report the tag information to us so we can tell how much the fish are growing and where in the reservoir they go.

These nets take a real beating. They tear as the winds drag them along boulders and old house foundations on the reservoir bottom. I repair nets all summer between doing surveys and other work on reservoirs in this area. Repairing nets isn't the most exciting thing I do, but it's necessary to keep them in good condition.



Photographer **JOHN ASHLEY** had seen a few long-toed salamanders outside his house on Rogers Lake, west of Kalispell. Then last June he came across one indoors. "I found him downstairs on a cement floor covered in dog hair and sawdust," Ashley says. "I can't imagine how he got there, but I suspect he had come up from the lake and climbed onto one of the dogs sleeping in the yard, thinking it was another obstacle to go over. The dog must have stood up and come in the house and the salamander fell off. I rinsed him off with water to warm him up and hydrate his skin. Then my wife and I took him across the road to some Forest Service land. There's a big old punky log there, and we put him on it. As he was crawling off to someplace underground and moist, where these guys generally live, I took this shot." ■

31.3

Weight, in pounds, of the new state record tiger muskie (northern pike x muskellunge hybrid) caught in 2011 at Deadman's Basin Reservoir, 60 miles northwest of Billings

Antelope and B license deadlines: 6/1

June 1 is the deadline to apply for Montana deer B (antlerless), elk B (antlerless), and all antelope licenses. Previously this was also the date for elk and deer permits, but that deadline was moved ahead this year to March 15. The deadline for moose, bighorn sheep, mountain goat, and bison licenses remains May 1, as in years past.

WILDLIFE MONITORING

No lake too wide for water-loving grizzly

Flathead Lake boaters and anglers won't need to carry bear spray, but from now on they should keep their eyes peeled for bears.

Last September FWP wildlife biologists learned that a two-year-old grizzly had spent nearly 12 hours swimming in the massive lake.

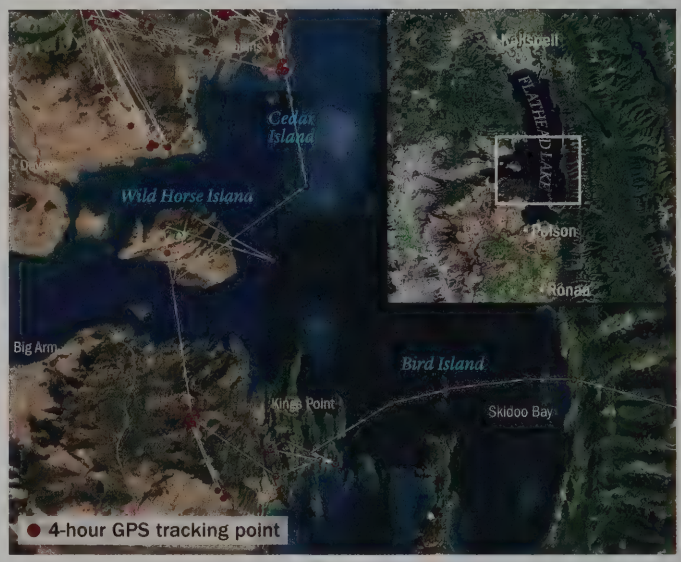
According to FWP bear biologist Tim Manley, the young female grizzly was captured on the west side of Flathead Lake in June 2010 and fitted with a GPS collar. The collar was programmed to automatically drop off 15 months later.

After biologists recovered the collar near Swan Lake last September, they downloaded the GPS coordinates, which showed the bear's location every four hours during the previous months. As they tracked its route, they were amazed to learn that the grizzly swam from the lake's west shore to Cedar Island, then to Wild Horse Island (which she left then returned to), then back to the mainland east of Big Arm. After three days in the Kings Point area, she swam northeast to Bird Island for part of a day, then carried on swimming to the east shore near Skidoo Bay.

The grizzly swam a total of 14 miles.

"What's obvious is that even big lakes aren't barriers to bears," says Manley. "We knew they could swim that far, but I never thought one would actually do it."

From Flathead Lake's east shore, the GPS coordinates showed that the grizzly traveled northeast into the Mission Mountain Range. The last coordinates put her near Swan Lake close to where she had denned with her mother as a yearling. "We've also been tracking her mother, who probably kicked her out as a two-year-old," says Manley. "It looks like this one was heading back, which isn't surprising, because young females often take up part of their mother's home range." ■



HUNTING RESULTS

Hunters fail to reach 2011 wolf quota

Despite a six-week extension to their four-month season, hunters did not reach the quota of 225 wolves set by the FWP Commission in 2011 to reduce the statewide population.

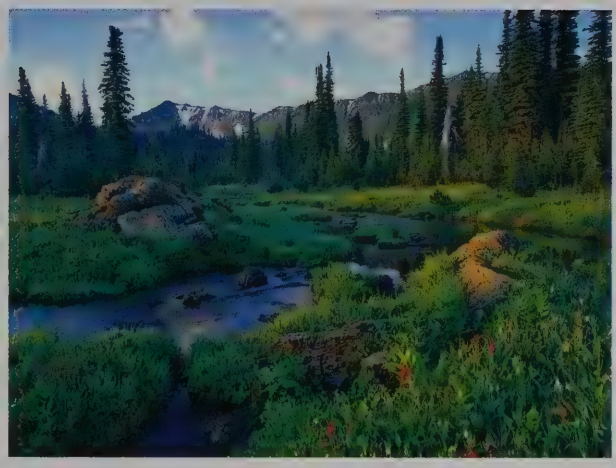
Hunters harvested 166 wolves, 25 percent below the target. The lower-than-expected harvest, coupled with fewer wolves killed for harming livestock than expected, meant the state's population grew by 15 percent in 2011 to at least 653 wolves.

"Hunters made a good effort, but all of us are still learning how hunting affects Montana's wolf populations," says Ken McDonald, FWP Wildlife Bureau chief. "We're meeting with hunters, landowners, and others to figure out the best ways to reduce wolf numbers and strike the right balance between wolves, other large carnivores, and prey species like deer and elk."

New strategies for increasing the wolf harvest in 2012 could include allowing hunters to take more than one wolf, the use of trapping and electronic calls, increasing wolf hunting education, and a longer wolf hunting season. ■

HUMAN DIMENSIONS

Bipartisan survey shows strong support for conservation



A new study shows that most Montana voters think of themselves as conservationists and support protections for Montana's clean air, clean water, natural areas, and wildlife. Voters also view Montana's parks and public lands as essential to the state's economy and way of life. These are among the findings of a newly released study by Colorado College, which polled nearly 2,500 registered voters in six western states.

The survey, conducted jointly by a Republican polling firm and a Democratic polling firm hired for the study, found that 80 percent of Treasure State residents view a strong economy as compatible with protecting land and water. "Montanans understand that a healthy environment is not only fundamental to our quality of life, but it's also the bedrock of businesses like ours," says K.C. Walsh, president of Bozeman-based Simms Fishing Products, in response to the 2012 survey.

Montana voters overwhelmingly identified themselves as conservationists (70 percent), a percentage higher than that of their fellow Westerners. Also from the 2012 survey:

- 80 percent of Montanans said the state can protect land and water and also have a strong economy.
- 93 percent agreed that "national parks, forests, monuments, and wildlife areas are an essential part of Montana's economy."
- When asked whether environmental regulations have a positive or negative effect on jobs in their state, Montana voters were more likely to say the laws were positive (48 percent) than negative (34 percent).
- 75 percent said Montana should maintain protections for land, air, and water in the state rather than reduce them "in an effort to create jobs as quickly as possible."

Read the entire survey at: http://www2.coloradocollege.edu/stateoftherockies/conservationinthewestsurvey_e.html. ■

OUTDOOR EDUCATION

"Snoopy Dance" of joy inspires BOW instructor

Jane Latus Emmert is crazy about fly-fishing and delighted to teach it to beginners. "When I learned to fly-fish I was instantly hooked," the Whitefish artist says. "I wanted to share that joy with others."

For the past three years, Emmert has taught dozens of beginners to cast a fly line as a volunteer Becoming an Outdoors-Woman (BOW) instructor. "There's nothing more exciting than watching other women discover the pleasure of fly-fishing and watching them gain confidence," she says.

She's not alone. Liz Lodman, who coordinates the BOW Program for FWP, says all volunteer instructors welcome the chance to share their knowledge with beginners. "That's one reason why BOW works so well," says Lodman. "We've got this great mix of motivated instructors and participants."

BOW was created to give women opportunities to learn outdoors skills in a supportive environment. This summer's BOW basic skills workshop is August 17–19 near Bigfork. "It's a beautiful setting on a beautiful lake," says Lodman. The workshop is designed for women but is open to anyone 18 years and older who wants to learn basic outdoors skills. The $200 fee covers instruction, meals, and lodging at a modern camp that has indoor restrooms and hot showers. Register by visiting fwp.mt.gov (look under "Education") or contacting Lodman either at (406) 444-9940 or llodman@mt.gov.

"My reward is seeing those smiles when they catch their first fish and watching them do the 'Snoopy Dance' of joy," says Emmert. ■

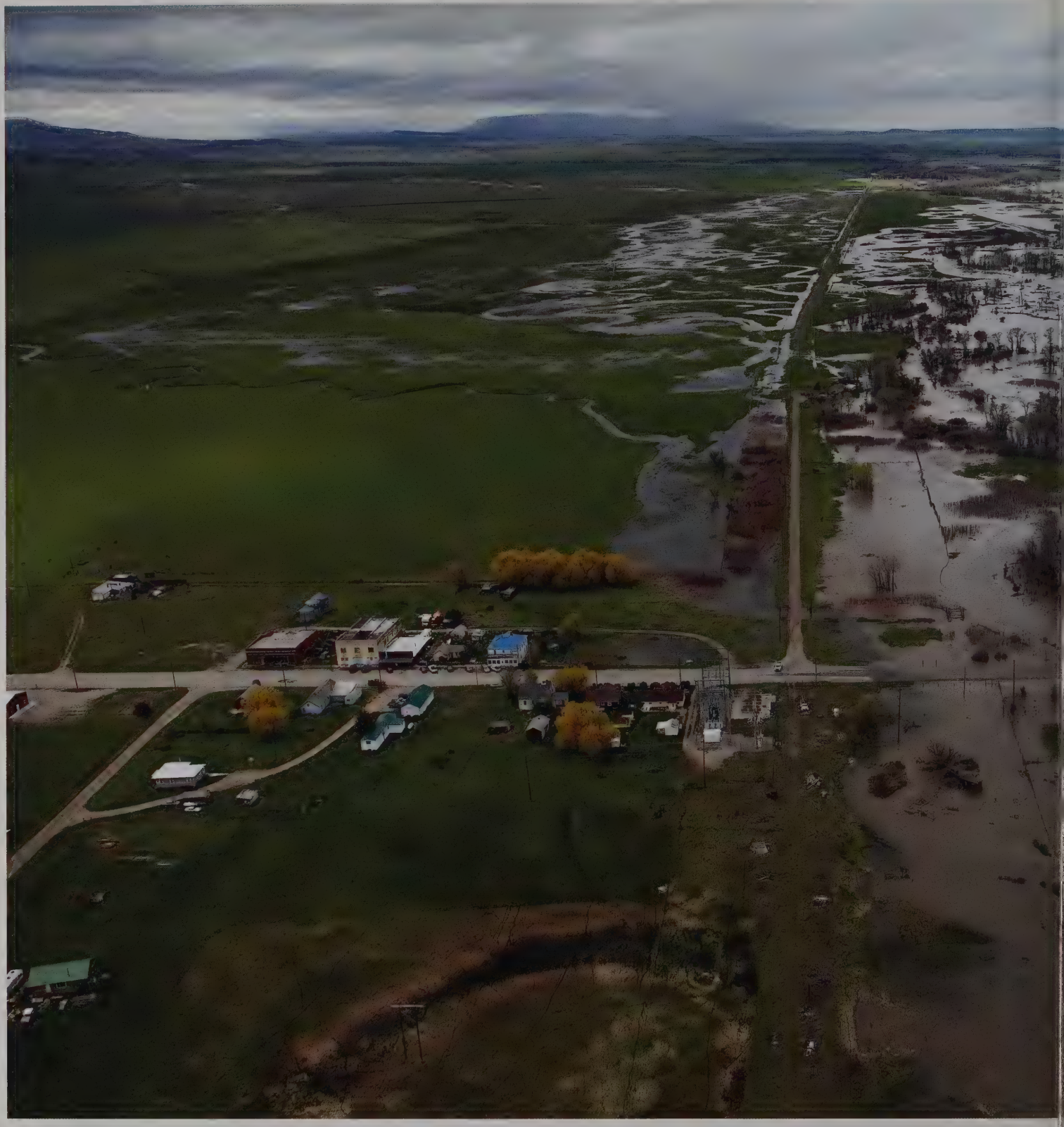
Montana's Top Rivers?

Writing and photography team Brian and Jenny Grossenbacher have gone out on a limb and picked what they consider Montana's top 30 trout rivers and creeks in their comprehensive book *Fly Fishing Montana: A No Nonsense Guide to Top Waters*. As the best of the best, the Bozeman couple give ratings of 8.5 or higher (on a scale of 6 to 10) to these rivers:

- Big Hole (rating of 9)
- Bighorn (9)
- Gallatin (9)
- Kootenai (9)
- Madison, upper (9)
- Madison, middle (9.5)
- Madison, lower (8.5)
- Missouri, below Holter Dam (9.5)
- Rock Creek (9)
- Smith (8.5)
- Yellowstone, from Gardiner to Livingston (10).

In praise of their top-ranked river, in the scenic Paradise Valley, the Grossenbachers write, "All serious fly-fishers should have the Yellowstone on their must-fish list."

CLOCKWISE FROM TOP LEFT: ILLUSTRATION BY MIKE MORAN; MONTANA FWP; CHUCK HANEY; BRIAN & JENNY GROSSENBACHER; ISTOCKPHOTO.COM; ISTOCKPHOTO.COM



THE FLIP SIDE OF

OVER ITS BANKS Ordinarily a sleepy prairie river, the Musselshell burst out across thousands of acres of farmland near Two Dot during peak flooding in May 2011. Though tragic for homeowners, businesses, and ranchers, the high water rejuvenated the floodplain, recharged the aquifer, and brought new life to the central Montana river.

CHRISTOPHER BOYER

FLOODS

Though a curse to river towns and nearby farms, high water like that in 2011 can be a blessing for fish populations and aquatic ecosystems.

BY JEFF ERICKSON

IT WAS A SUNNY JUNE DAY IN LIVINGSTON, the snowcapped Absaroka Range towering above town. Standing on the bank with a group of onlookers gaping at the rampaging Yellowstone River below, I overheard someone lament that the river's fabled trout "were being washed downstream to North Dakota."

The Yellowstone at that time last spring was certainly a dangerous torrent of muddy water. In some places the river was spilling over its banks, and uprooted trees raced past in the powerful current. The same was true of rivers across the state. Record snowpack and heavy spring rains had combined to create river flows, water levels, and flooding destruction unseen in Montana for decades.

Yet despite all that hydrological muscle, the high water and flooding did not harm Montana's fish. In fact, the floods actually benefitted many species.

What to us seems like a destructive force above the water surface improves trout habitat below—cleaning spawning gravel, scouring holes, and flushing clogged channels. The same is true for the habitat of other Montana river species such as sauger, paddlefish, and

INUNDATION ABOVE, SCOURING BELOW Plants and fish living in river environments have evolved over eons to require periodic flooding. Surging water carves out new river channels, washes fertile silt far onto the floodplain, and carries nutrients into the river. Underwater, the powerful currents scour sediment from rocks and gravel where aquatic insects live and fish spawn.

pallid sturgeon, which have evolved over eons in response to the vagaries of naturally flowing rivers.

For people in their pathway, floods are rarely good news. But for fish, even those in the roiling Yellowstone River I watched flow past, periodic high water is essential.

The heaviest floods of 2011 were east of the Continental Divide, as a combination of above-normal snowpack and drenching spring rains pushed many waterways over their banks. The normally mellow Milk River crested at 26,500 cubic feet per second (cfs), the second highest flow ever recorded. The Musselshell peaked at 20 times its usual flow for late May. The Yellowstone broke a 102-year-old record at Glendive with a torrent of 125,000 cfs. High water flooded several towns—including Roundup, Glasgow, and Crow Agency—forcing the temporary evacuation of hundreds of residents.

In western Montana, flows not seen in a decade or more were reported on the Big Hole, Bitterroot, and Clark Fork, the latter flooding neighborhoods in Missoula.

While causing tens of millions of dollars in road, home, and crop damage, the high water flushed out silt-laden rivers and streams while bathing floodplains in restorative water and nutrients. "Floods reshape the condition of the river. They freshen it up," says Steve Dalbey, Montana Fish, Wildlife & Parks regional fisheries manager in Glasgow. He compares a stream or river to a respiratory system, periodically expanding and contracting in floodplains like healthy lungs so the aquatic system can "breath."

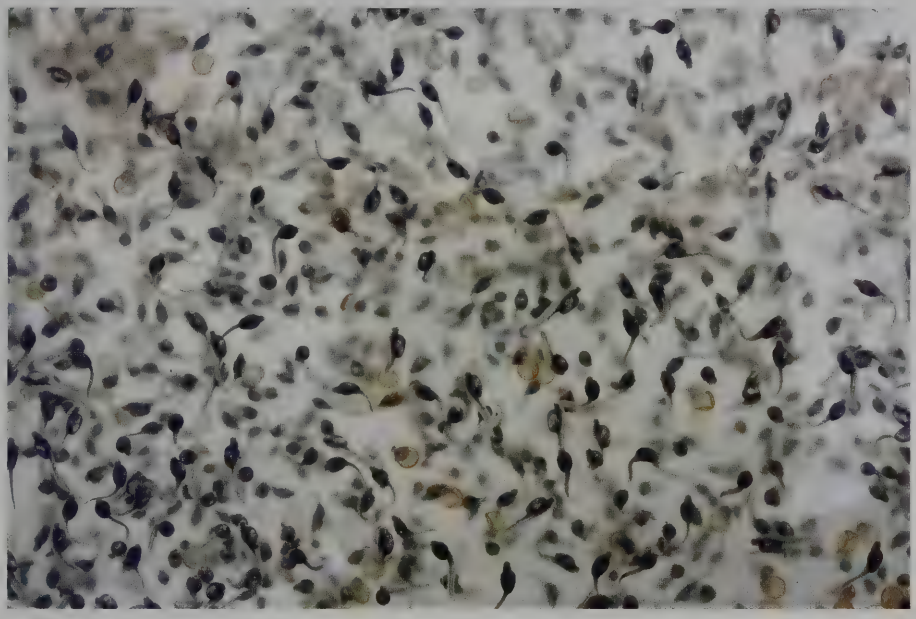
"Floods re-sort and clean out the gravel, creating better conditions for trout spawning redds [grounds]," says Jim Vashro, FWP regional fisheries manager in Kalispell. Vashro explains that trout eggs do best in clean gravel, where flowing water carries oxygen to developing fish embryos. Without cleansing flows, silt washing in from the surrounding watershed fills in spaces between gravel, preventing oxygenation and smothering eggs. Vashro says the spawning success of native bull trout, for instance, decreases during low-flow years, when silt and other fine material can comprise 30 to 40 percent of the stream bottom.

Heavy flows also trigger spawning runs of several species, including the federally endangered pallid sturgeon, one of the rarest fish in the United States. According to George Liknes, FWP fisheries manager in Great Falls, pallid sturgeon numbers have plummeted over the past half-century primarily because of dams. The structures block access to upstream reaches, reduce turbid water the pallid prefers, and hold back strong flows that trigger spawning movement and behavior.

Montana's pallid sturgeon respond to high water in the same way salmon do, says Liknes. The fish don't make spawning runs until heavy flows let them know they can move far upstream, over barriers that block migration when flows are low. Liknes says high flows in the Missouri River above Fort Peck Reservoir in 2011 triggered a surge of spawning pallid sturgeon and enabled them to move farther upstream from the reservoir than ever recorded.

Below Fort Peck Dam, Dalbey says fisheries crews used radiotelemetry to track five pallids well up the Milk River from its confluence with the Missouri. One fish traveled 36 miles, the farthest ever recorded. Large numbers of sturgeon also moved up the Missouri River from below the confluence with the Yellowstone River. "Usually these fish head up the Yellowstone, because it has heavier and warmer springtime flows," Dalbey says. "But last year, 40 percent came up the Missouri due to Milk River flows combined with record releases over Fort Peck Dam." Dalbey explains that water from the top of the reservoir was warmer than water released from the base of the dam, as is usually the case. "Pallids

WHAT DAM? High water swamps diversion dams like this one at Intake on the Yellowstone River. Fish ordinarily blocked from upstream movement to spawning waters were able to swim over the submerged concrete obstructions. In summer 2011, FWP biologists found spawning pallid sturgeon below Fort Peck Dam for the first time in decades. Below: Newly hatched sturgeon fry.



CLOCKWISE FROM TOP LEFT: NELSON KENTER; BRENT HANSON/USGS; STEVEN H. RANNEY; MICHAEL READY

respond to warmer water, because they evolved here long before there were any dams," he says.

Another first: Fisheries crews found spawning pallid sturgeon congregating below the mouth of the Milk River. Several weeks later, crews sampling the river discovered a recently hatched baby sturgeon, smaller than a pencil eraser. It was the first documentation of pallid sturgeon spawning in the Missouri River below Fort Peck Dam. "All this is unprecedented, a huge change," says Dalbey. "For pallid conservation, it doesn't get much bigger than this."

"All this is unprecedented, a huge change. For pallid conservation, it doesn't get much bigger than this."

Heavy river flows also help fish by restoring connectivity. Flooding allows fish to go over or around low-water obstacles and reach new habitat. High water blows out log jams and beaver dams on tributaries. This lets trout and other species travel farther upstream to prime spawning habitat and then move back later in the year to deeper pools in the mainstem river.

The record high water in 2011 gave spawning paddlefish the opportunity to migrate much farther up the Yellowstone and its tributaries than normal, says Mike Backes, FWP regional fisheries manager at Miles City. "Paddlefish are only able to get over Intake Diversion Dam [near Glendive] or around via a side channel about once every ten years," he says. "After they get upstream of Intake, they can go a long way."

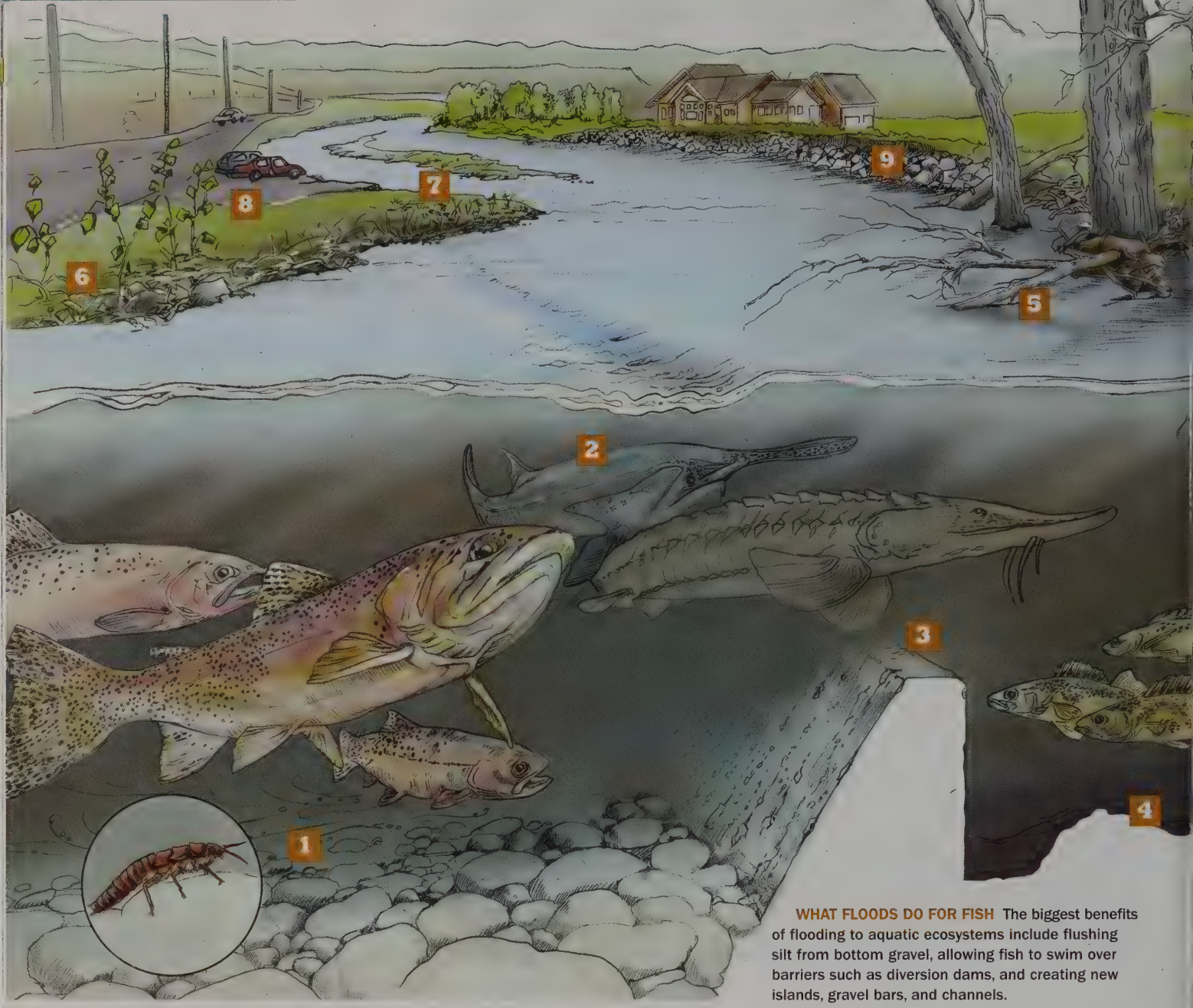
Flathead chubs and lake chubs were found 60 miles from the Yellowstone up tiny Sunday Creek. "Landowners who've been there for 70 years have never seen the creek with so much water," says Backes. "It was a recurring theme on many tributaries in the region."

Floods create new habitat for coldwater, coolwater, and warmwater species including trout, arctic grayling, sauger, burbot, and channel catfish. Heavy flows carve out new side channels, pull boulders in from riverbanks, build new sand and gravel bars, and deposits logs that fish use as habitat. "We should see phenomenal sauger production on the lower Yellowstone as a result of last year's high water," says Backes. "Native species just thrive in these conditions."

Another benefit of high water comes from the sediment it carries onto floodplains. Cottonwood seeds take root only in the fine-grained silt left by receding floodwaters. Cottonwoods shade streams, keeping them cooler in summer. When the trees eventually die of old age, they tumble into rivers, adding nutrients and creating hiding areas for fish. "Without the recruitment of cottonwoods and shrubs through periodic flooding, streambanks would be far less vegetated," says Vashro.

On reservoirs and lakes, high water inundates shorelines and draws nutrients into the aquatic system. Plants along flooded shorelines decompose, feeding microorganisms that in turn provide food for insects and fish fry. Many fish species spawn in flooded vegetation, which also provides cover for young fish. "Everything benefits" from shoreline flooding, says Dalbey, who notes that Fort Peck rose to record levels in 2011. At the end of the year, his crews were already noticing "an increasing plumpness in the walleye," he says.

Even with all this good news for Montana fish, flooding does cause some harm to aquatic life. Retreating floods can leave fish



WHAT FLOODS DO FOR FISH The biggest benefits of flooding to aquatic ecosystems include flushing silt from bottom gravel, allowing fish to swim over barriers such as diversion dams, and creating new islands, gravel bars, and channels.

stranded in fields and road ditches. In some cases, high water velocity causes fish to use too much energy, making them susceptible to disease or predation, or it pushes them to places with less available food. Sustained muddy water can harm the gills of trout and other species unaccustomed to turbidity. And high water can wash eggs out of spawning redds and blow newly hatched fry far downstream.

Cataclysmic floods even destroy fish habitat. If great enough, flows erode banks in ways that make channels too wide and shallow, fill side channels with silt, and suck out submerged logs and other important fish cover. Vashro says some northwestern trout streams ravaged by a massive flood in 1964 still haven't fully recovered.

While some floods blow out beaver dams and other obstacles blocking fish movement, others produce barriers. Vashro says last year's flooding in the South Fork of the Flathead drainage deposited tons of rock and woody debris that prevented fish movement in some areas. "People don't realize how much material a stream moves until they've heard boulders clattering along the bottom," he says.

In some cases human development in a watershed can worsen a flood's environmental effects. One problem is riprap—large boulders, concrete, and other material installed along river shorelines to keep rising water from eroding banks and flooding homes and property. "After a big flood, with the perception that Mother Nature has gone wild, there is a tendency to mess with the river and try to make it leave you alone," says Chuck Dalby, a surface water hydrologist with the

"After a big flood, with the perception that Mother Nature has gone wild, there is a tendency to mess with the river."

Jeff Erickson is a writer in Helena.

FLOODING BENEFITS

1 **River bottoms** are flushed of sediment that can smother fish eggs and aquatic insects.

2 **Spawning runs** by pallid sturgeon and paddlefish are triggered by heavy flows.

3 **Connectivity** increases when high water allows fish to go over diversion dams and other obstacles that typically block spawning runs and other movement.

4 **Holes and undercut banks** used by fish as hiding cover are scoured out.

5 **Woody debris** is washed into the river, adding nutrients and cover for insects and fish.

6 **Young cottonwoods** grow in the fine-grained silt left by water in floodplains.

7 **New channels** and islands are created by heavy flows.

MAKING THINGS WORSE

8 **Impervious surfaces** such as roads, parking lots, and lawns send rain and snowmelt directly into rivers, increasing flows. Natural vegetation allows much of that water to seep into the ground and aquifers.

9 **Riprap** "corsets" a river's energy, sending it downstream with increased velocity and power.

CLOCKWISE FROM TOP LEFT: ILLUSTRATION BY EMILY HARRINGTON; CRAIG & LIZ LARCOM; USDA/NCRS

Montana Department of Natural Resources and Conservation in Helena. Unfortunately, riprap and dikes cause harm by constricting the river's energy and pushing the water downstream, "where it will eventually find a place to spill out with far greater force," he says. "Riprap essentially moves flooding to your downstream neighbors."

"Impervious surfaces" such as parking lots and roads pose another problem. When heavy rains fall on natural vegetation, water is slowly absorbed into the ground, recharging the aquifer. But when rain and snowmelt hit pavement or a fairway-like lawn, water quickly cascades downstream, rapidly increasing flows. Streamside residents also worsen a flood's damaging effects when they remove shrubs and trees and replace them with lawn. Without the native vegetation's deep roots to anchor them, banks are eroded by high water and sediment washes into the river.

Floods are able to reshape river channels, carry away cars, and even push buildings off their foundation. Amazingly, those surging waters do little damage to individual fish. Contrary to the predictions I'd heard that trout in Livingston were being washed downstream to North Dakota, fish have found ways to survive even the most severe flooding.

One look at the graceful, streamlined form of a trout, sturgeon, or other river fish and it's obvious the creature has evolved to negotiate fast-flowing water. And when flows get too strong, says Backes, fish simply move from the main channel to banks or side channels where velocity is slower.

Occasionally, fish are swept downstream, such as when newly hatched fry and even adult walleye washed over Holter Dam into the Missouri last spring. But Backes says such cases are uncommon, and that in free-flowing rivers, fry that end up far downstream eventually move back as they grow larger and flows drop.

LET THE WATER IN Riprap that is used to keep water from flooding homes and eroding banks—shown here on the Missouri River between Craig and Cascade—acts like a hardening of the arteries, increasing water pressure downstream. When high water is allowed to flow over banks and onto floodplains, cottonwood seeds take root in the silt. Below: seedlings along the Musselshell River in October 2011, sprouting from sediment deposited by floodwaters several months earlier.

Eventually, all floodwaters recede, as I saw for myself a few months later after returning to the Yellowstone downstream from Livingston. It was a river transformed, with massive scour areas on inside bends and islands festooned with enormous tangles of logs and root wads. As I reached the water's edge, I could see early autumn leaves on century-old cottonwoods beginning to turn yellow. In the silty soil below, young seeds were germinating and taking root in the fertile ground created by the flood. I began casting into a run that was low and clear—typical September conditions. Thinking back to the raging torrent I'd seen in June, I recalled an observation by the ancient Greek philosopher Heraclitus: "You cannot step twice into the same river."

It was prime 'hopper season, with both rainbows and browns eagerly taking my foam imitations. Another flood had come and gone, adding new life to this great river. Its streambed was freshly scoured and sparkling clean, and I knew that nymphs were scrambling in the rocks and gravel below the water surface. A trout took my fly and, after a few minutes, I brought it to hand. It was another fat, healthy Yellowstone River rainbow, no worse for the wear.

AIMING FOR 86

Each in his own way, a schoolboy and a retiree are trying to catch as many of Montana's different fish species as possible. **BY NICK GEVOCK**

Dave Hagengruber and his son Joe were in the middle of a summer weekend every fly angler dreams about.

Under the towering face of the Rocky Mountain Front, the pair were casting dry flies and catching one trout after another as they sampled several streams that pour out of the Bob Marshall Wilderness.

But Joe wasn't into it, his dad says. The boy was thinking about a fish species the size of a minnow—the brook stickleback—that he'd been trying to catch on another stream earlier that summer. "There we were, catching cutthroats and rainbows and brook trout all weekend long. I mean, the fishing was really good," says Dave. "Then Joe says, 'Please, please can we stop and go back to the stickleback place.'"

The brook stickleback is just one of the Montana fish species that have piqued Joe's interest in recent years. For this angler, it's not the quantity or size of fish that matters but rather the challenge of catching as many different species as possible. And the more obscure the fish, the better.

Joe Hagengruber, 12, has a mission to bag every one of the 86 fish species that swim in Montana. He's off to a good start.

So far he has caught 43 different species. "He's halfway there," says his dad, who coordinates the Montana Fish, Wildlife & Parks Aquatic Education Program. In addition to the commonly caught walleye, various trouts, and mountain whitefish, Joe has hooked and landed shovelnose sturgeon, northern redbelly dace, largescale suckers, and northern pikeminnows. Two of his catches turned out to be state records—a spotttail shiner and a lake chub, each weighing a whopping .02 pounds. "Nobody had ever submitted those little species for records before," says Dave.

Joe says that even though he likes fishing for trout, he considers many other species far more interesting to catch. He's now set his sights on landing, among other fish, a river carpsucker, a sicklefin chub, and, his most ambitious goal, an Iowa darter—a colorful 3-inch-long member of the perch family found only in a few streams in the state's northeastern region. "I'm going for the more unique and challenging species," Joe says. "I like the minnows and other little fish because they're harder to catch."

> "Dad, I have to meet that guy and find out how he caught so many fish in a year."

Dave says his son has been crazy about fishing since he was old enough to hold a rod. He recalls a family fishing trip to the Tongue River when the then-five-year-old fished well past sunset. "We were sitting at the campfire and he was 50 feet away casting in the dark," Dave says. "Finally I had to go down and pick him up and carry him to the campsite. He was asleep by the time we got him to the tent. Then he was up at 6 a.m., crawling out of his sleeping bag saying, 'I've got to go fish. I had a dream I hooked a northern [pike] last night!'"

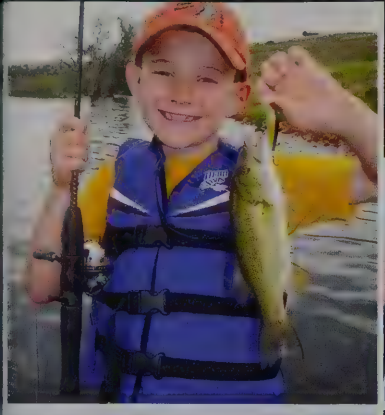
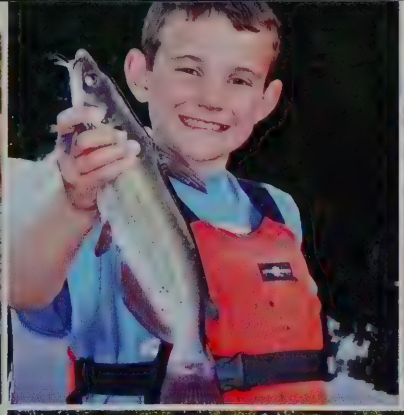
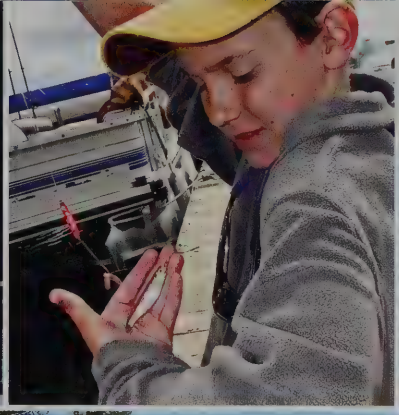
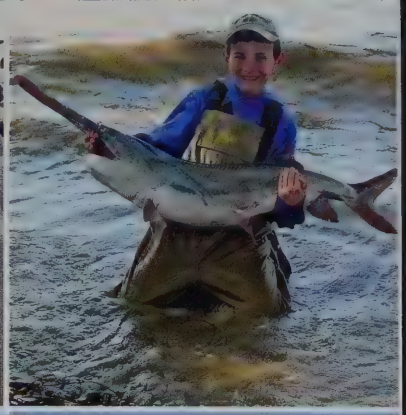
One day when father and son were fishing, Joe caught five different species. He's been hooked on variety ever since.

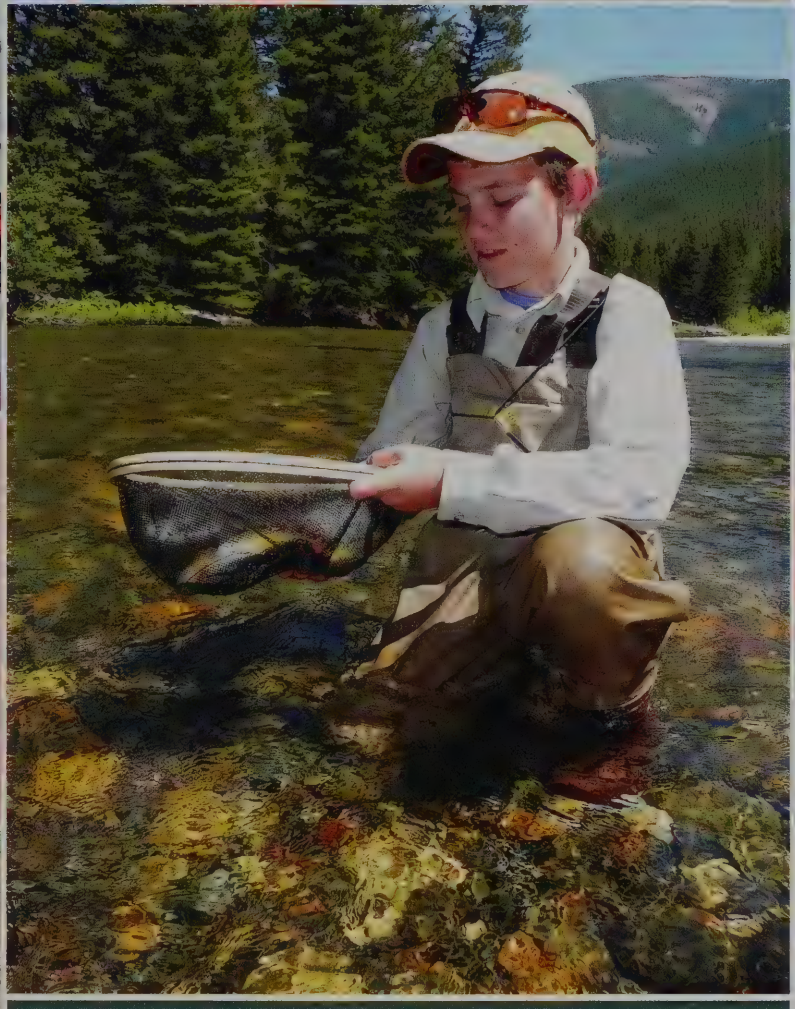
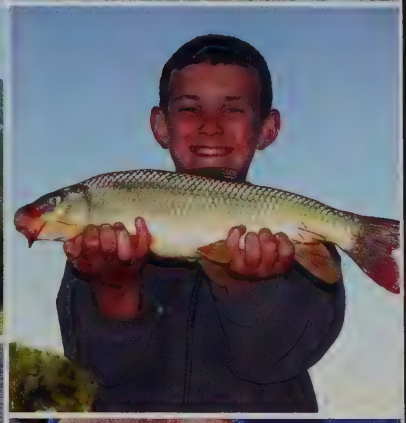
Dave bought him a copy of *Fishes of Montana*, by C. J. D. Brown. "He went through the book and made a list of all the species," Dave says. "When we drive somewhere, he reads the book as we go and tells me about the different fish. It's like his bible."

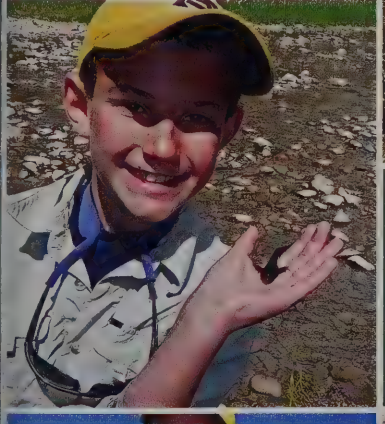
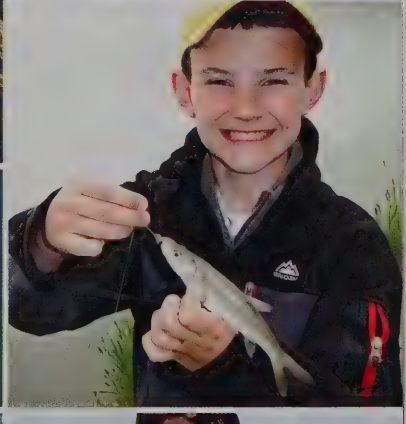
Hooking obscure fish such as peamouth, green sunfish, and shorthead redhorse takes research, planning, and perseverance by both Hagengrubers. In his off hours, Dave calls local fisheries biologists to find the best spots, times of year, and techniques for catching various species. The pair has driven to Glendive to snag paddlefish in the Yellowstone River, Tiber Reservoir to catch spottail shiners, and Fresno Reservoir for lake whitefish.

Dave says he helps when he can, but Joe's growing life list is largely the result of

PHOTOS COURTESY DAVE HAGENGRUBER

BOY ON A MISSION Sixth-grader Joe Hagengruber of Helena has logged 43 different species in his fishing life list. Clockwise from top left: smallmouth bass; channel catfish; spottail shiner; paddlefish; shorthead redhorse; pygmy whitefish; northern pikeminnow; lake whitefish; pumpkinseed; westslope cutthroat trout; shovelnose sturgeon; mottled sculpin; brook stickleback; and black crappie. Center: Joe with a Yellowstone cutthroat trout. "Trout are okay," he says. "But I like fish that are harder to catch, like minnows."

the boy's single-minded passion. "Last week we were ice fishing for perch and rainbows at Bynum Reservoir, and he spotted this little creek with open water," says Dave. "He thought there might be some brook sticklebacks in there, so he spent about three hours trying to catch those little guys before finally I had to go down and drag him back to the truck."

Joe caught several sticklebacks that day—using maggots as bait—and added another species to his list.

The young angler uses a spinning rod and reel for most species. To catch the tiniest specimens he prefers a simple cane pole with the line tied to the end. He came up with the idea as a way to fish brushy creeks using tiny hooks and the lightest of lines. "You don't cast it at all," Joe says. "You just drop it out there." When he hooks a minnow or other miniature fish, he lifts it straight up and out of the water and swings the catch slowly and smoothly to shore.

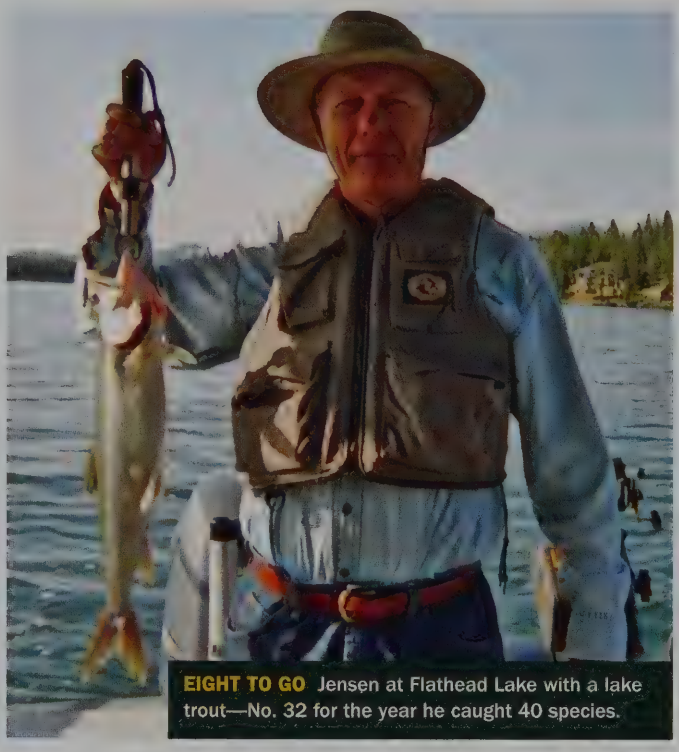
As Joe's list of remaining species shortens, it becomes harder to catch the next fish. The Hagengrubers are planning a backpacking trip this summer into the Beartooth Mountains to a lake known to hold golden trout. They also plan to work in a trip to the Yaak Valley to catch redband rainbow trout.

Joe says the most difficult fish he has tried to catch so far are the state's 21 different minnow species. Some live in only a few streams and can be tough to find, let alone catch. For the smallest species, Joe uses tiny size 22 hooks, about the size of this "c."

Already halfway to his goal, Joe says he can't predict when he might catch species No. 86. But the sixth-grader has plenty of fishing seasons ahead to finish his life list. "I don't really have a time frame," he says. "I'm just trying to do what I can all my life."

Nick Gevock is a freelance writer and a reporter at the Montana Standard *in Butte.*

Gardell Jensen is another angler devoted to catching as wide a range of fish species as he can. The 65-year-old retired chemical engineer grew up fishing for trout in mountain streams and reservoirs in his home state of Utah. About 30 years ago he moved to Great Falls, Montana. That's when he began keeping logs of his excursions, sorting his catch into two simple categories: "trout" and "trash fish."



EIGHT TO GO Jensen at Flathead Lake with a lake trout—No. 32 for the year he caught 40 species.

"I'm probably one of the few people in the world who gets excited by catching a sucker."

One day, Jensen had a revelation. He had caught what he was pretty sure was a species of sucker and was about to log it simply as "sucker" in the "trash fish" category when he realized he could do a better job of identifying fish species.

"I thought it was silly to just write down 'sucker,'" he says. "I knew there were a bunch of different species and thought I should learn what they were."

Jensen got his hands on a copy of *Fishes of Montana* and soon learned that Montana is home to nine different members of the sucker family. Thumbing through the guide, he returned to his log and recorded in more detail every species he'd caught that year.

The angler became "obsessed," as he puts it, with catching species he previously lumped together as trash fish. "Now I really enjoy whatever species I catch," Jensen says. "I'm probably one of the few people in the world who gets excited by catching a sucker."

Unlike Joe Hagengruber's life list goal, Jensen tries to catch as many different species as he can in a single year. Each New Year's Day he hits the reset button and starts anew.

He's learned not only about different species, but also the techniques needed to catch them and the way they fight. "I can usually tell from the first hit what kind of fish it is," he says.

In 1995, his first year of keeping detailed records, he caught 12 different species. The number rose to 18 species in 1996 and then to 22 the following year. In 2008 he caught an amazing 35 different species. "I honestly didn't think I'd ever break that record," he says.

But he did.

Jensen retired from his job in late 2008, which gave him the entire next year to fish. In 2009 he caught a record 40 different species. It wasn't easy. He traveled thousands of miles back and forth across the state looking for waters where he could catch new fish to add to his list.

One morning, in search of a yellow bullhead, he drove six hours from Great Falls to Miles City. He fished Spotted Eagle Pond all day and by 9:30 that night still hadn't caught one. He knew the park closed at 10. Jensen fished on, the only visitor remaining. Then, just a few minutes before he had to leave, he hooked a fish. As he pulled it near shore, he shined his flashlight into the dark water. It

PHOTOS COURTESY GARDELL JENSEN AND DAVE HAGENGRUBER

was a yellow bullhead. "I got pretty excited," he says. "I knew yellow bullheads were in that pond, but I'd fished it many times before and had never caught one."

Jensen moved to Idaho in 2010 for family reasons. But he still makes annual trips to Montana to meet up with a fishing buddy, Jim Brown of Great Falls.

His obsession for fish diversity lives on. Jensen says one of the greatest things about fishing for many different types of fish is visiting a wide range of Montana waters and landscapes. "Some species are found only in very specific areas," he says. "I get to fish one end of the state to the other."

Proud of his achievements and passion for fish diversity, Jensen says other anglers might want to consider broadening their angling horizons. Crowding continues to plague Montana's more popular trout streams and rivers. Meanwhile Jensen explores waters where very few anglers ever fish, all the while probing the depths for burbot, freshwater drum, smallmouth buffalo, and other species that often outweigh cutthroats, rainbows, and browns. "People need to understand that trout aren't the only fish in the world that tug on a line and give a good fight," he says. "They aren't the only interesting fish that swim."

There's a 12-year-old angler in Helena who needs no convincing. "When Joe heard about Gardell," says Dave Hagengruber, "he told me, 'Dad, I have to meet that guy and find out how he caught so many fish in one year.'"

43 species, 12 years old

Joe Hagengruber's life list

Species	Joe's Age	Species	Joe's Age
Yellow perch	3	Lake chub	10
Rainbow trout	3	Northern redbelly dace	10
Burbot	4	White sucker	10
Black bullhead	4	Spottail shiner	10
Largemouth bass	5	Carp	10
Walleye	5	Goldeye	10
Mountain whitefish	5	Shorthead redhorse	10
Brown trout	5	Shovelnose sturgeon	10
Yellowstone cutthroat trout	5	Lake trout	10
Arctic grayling	5	Longnose sucker	10
Rock bass	6	Northern pikeminnow	10
Pumpkinseed sunfish	6	Peamouth	10
Black crappie	6	Channel catfish	11
Brook trout	6	Paddlefish	11
Westslope cutthroat trout	7	Stonecat	11
Smallmouth bass	7	Brook stickleback	11
Yellow bullhead	7		
Bluegill	7		
Largescale sucker	8		
Northern pike	8		
Bull trout	8		
White crappie	8		
Green sunfish	8		
Kokanee salmon	8		
Lake whitefish	8		
Fathead minnow	9		
Pygmy whitefish	10		

Jensen releases an arctic grayling caught at Park Lake near Helena.

40 species in one year

Gardell Jensen's amazing 2009 tally:

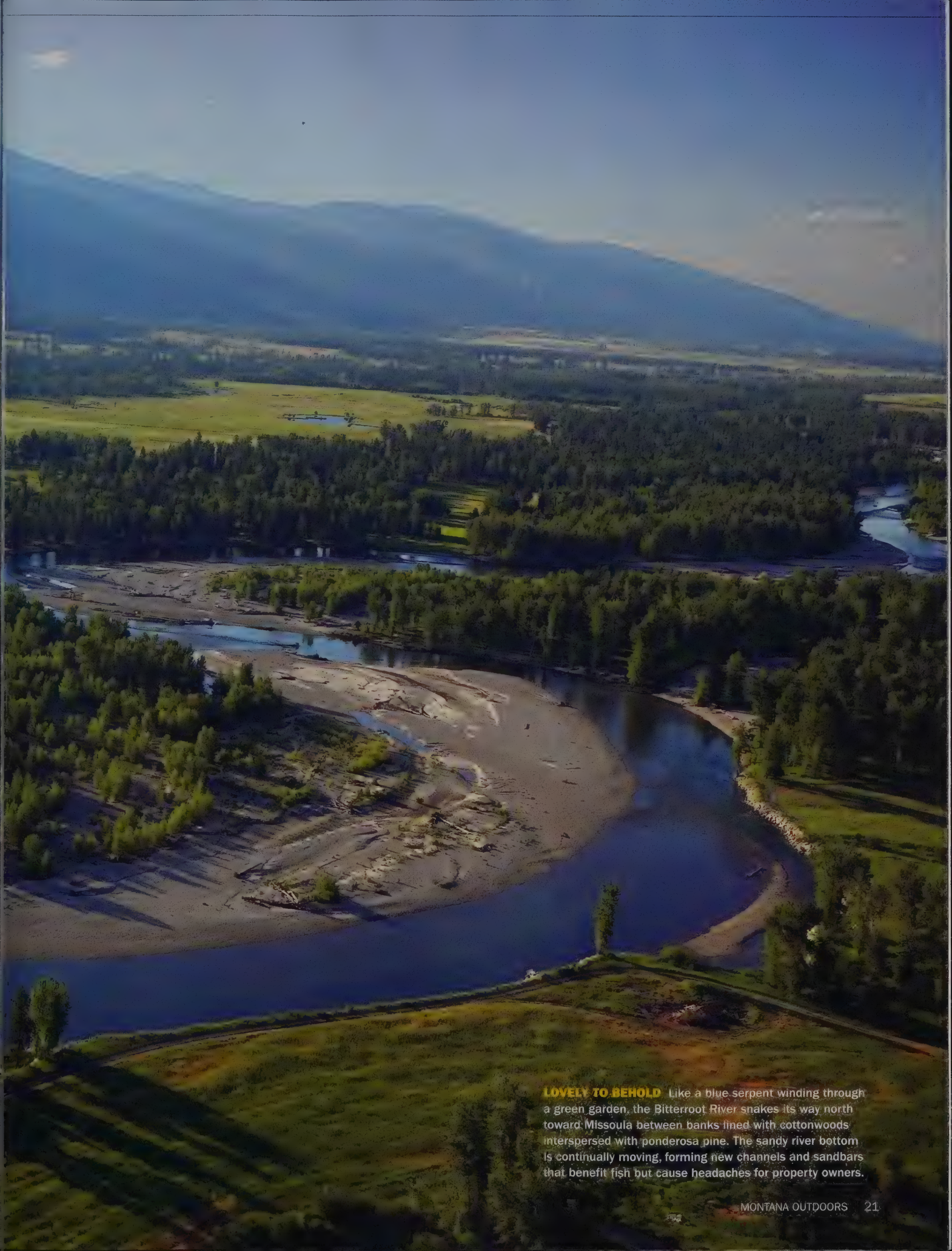
Arctic grayling
Bigmouth buffalo
Black bullhead
Black crappie
Bluegill
Brook trout
Brown trout
Bull trout
Channel catfish
Common carp
Flathead chub
Freshwater drum
Golden trout
Goldeye
Green sunfish
Lake chub
Lake trout
Lake whitefish
Largemouth bass
Largescale sucker
Longnose sucker
Mottled sculpin
Mountain whitefish
Northern pike
Northern pikeminnow
Peamouth
Pumpkinseed sunfish
Rainbow trout
Redside shiner
Sauger
Shorthead redhorse
Smallmouth bass
Stonecat
Walleye
Westslope cutthroat trout
White crappie
White sucker
Yellow bullhead
Yellow perch
Yellowstone cutthroat trout

THE RIVER THAT DOES IT ALL

Despite booming residential development and growing angling pressure, the Bitterroot continues to provide superb trout fishing while maintaining pristine coldwater habitat for imperiled native fish. How long can that last?

BY DARYL GADBOW

BITTERROOT RIVER NEAR HAMILTON BY RON LOWERY/RONLOWERY.COM



LOVELY TO BEHOLD Like a blue serpent winding through a green garden, the Bitterroot River snakes its way north toward Missoula between banks lined with cottonwoods interspersed with ponderosa pine. The sandy river bottom is continually moving, forming new channels and sandbars that benefit fish but cause headaches for property owners.

The memory is still vivid more than a half-century later. The momentous event took place on the Bitterroot River about 30 minutes by bicycle from my childhood home in Missoula. A bunch of old wrecked cars were stacked along the bank in that stretch of river. The rusty hulks were part of a fleet of vintage automobiles used in the 1950s as "Detroit riprap" by the U.S. Army Corps of Engineers to prevent erosion and stabilize the channel in a few reaches of the river.

I was armed with Dad's battered old bamboo fly rod. Attached to my leader was a Bunyan Bug, a cork-bodied, horsehair-winged creation of the late Norman Means, also known as Paul Bunyan, of Missoula. Bunyan's "bugs" had been a favorite salmonfly imitation among fly casters across Montana and other western states since Means first tied them commercially in the late 1920s. There were no salmonflies in that stretch of the Bitterroot, but I didn't care.

Daryl Gadbow is a writer in Missoula.

My feet planted firmly on the caved-in roof of a 1940s-model Packard, I lobbed a cast onto the brilliantly clear water and was amazed when a beautiful 16-inch rainbow attacked the bug. Breathlessly, I hauled the fish in. It was the first time I had caught a trout on a fly, and from that day on I've been a devotee of both fly-fishing and the Bitterroot River.

I have plenty of company. According to Montana Fish, Wildlife & Parks surveys, the Bitterroot is the third most heavily fished river in Montana, behind only the hallowed Madison and famed Bighorn.

The river's popularity goes back a century. One local newspaper reported in 1910 that on warm afternoons anglers "line the shores almost daily." In recent years the river has drawn even more admirers. Housing starts in the valley are among the highest in Montana, and fishing pressure on the river has doubled in the past three decades. To maintain excellent fishing on the Bitterroot, FWP biologists and anglers have had to fine-tune fishing regulations as well as work with landowners to ensure adequate "in-stream flows" of water so trout can survive. That work, along with the river's natural ability to produce fish, has helped the Bitterroot remain among the best trout rivers in a state renowned for trout fishing.

So many attractions

The Bitterroot's greatest appeal, according to Pat Saffel, FWP regional fisheries manager in Missoula, is that it holds far more fish than similar-sized rivers. He notes that the upper Bitterroot carries roughly 1,000 trout per mile, compared to 300 to 500 trout per mile in the legendary (and similar-sized) Blackfoot River.

In addition to brown trout and rainbows, the Bitterroot contains a healthy population of native westslope cutthroat trout. "Only a few rivers are left in Montana where you can regularly catch 15-inch cutthroat, with the possibility of a 19- or 20-incher," says FWP fisheries biologist Chris Clancy of Hamilton, who has been working on the Bitterroot fishery for the past two decades.

BIG MONTANA NATIVE The Bitterroot is the most accessible river in Montana where anglers can catch large westslope cutthroat trout. Fish in the 15-inch range are common, and 19- and even 20-inchers are regularly reported.

> **"You get this mix of fertile water from the east and crystal-clear tribs from the west that makes a perfect combination for trout."**

The Bitterroot Valley, often called Montana's "banana belt," is blessed with a relatively mild climate that allows anglers to fish nearly every month of the year. "If it's nice enough to be outside, you can catch fish the Bitterroot," says Saffel.

The river also offers anglers many different entry points. FWP fishing access sites, as well as other designated access spots along highways and at bridge crossings, are well spaced along the river, says Clancy. "Plus, it's large enough to float, but small enough to effectively wade-fish."

The Bitterroot is famous for its prodigious insect hatches. Clancy says the Bitterroot is more fertile than many similar-sized western Montana trout rivers because several tributaries come down from the calcium-rich bedrock of the Sapphire Range. A wide variety of stoneflies, mayflies, and caddis flies provide exceptional fly-fishing opportunities. An early spring hatch of Skwala and Nemoura stoneflies attracts dry-fly anglers from across the West. The hatch starts in mid- to late March—well before the dry-fly season kicks off on most other major Montana streams.

If that isn't enough, the Bitterroot also gives anglers a chance to catch an occasional northern pike or largemouth bass in a few slow-current backwater stretches.

A rarity: both clear and fertile

The Bitterroot flows almost straight north for 80 miles from the junction of its East and West Forks, both great trout streams in their own right. The East Fork originates in the Sapphires in the Anaconda-Pintler Wilderness, while the West Fork springs from the rugged Bitterroot Mountains near the Idaho border.

After the two forks meet to become the mainstem Bitterroot near the small community of Conner, the river widens but remains cold and riffly, and cutthroats are the primary species. Below Hamilton the water warms and flow slows as the river runs through a broad floodplain between the two scenic mountain ranges. Browns and rainbows are most common here.

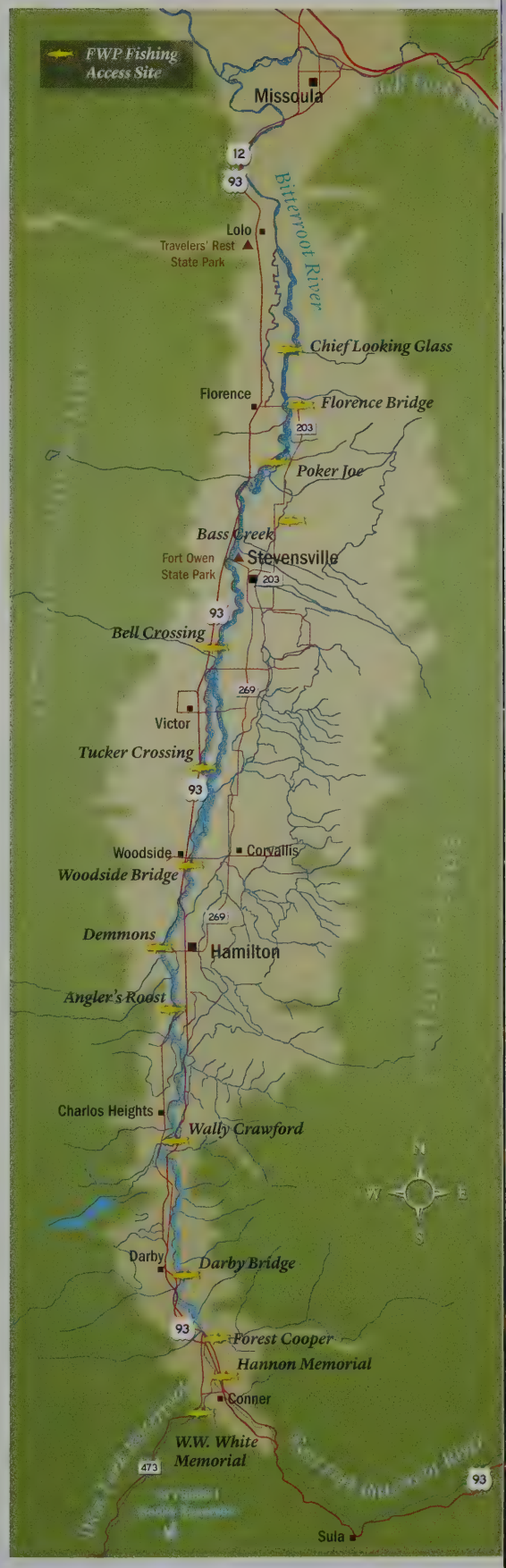
U.S. Highway 93 parallels the Bitterroot throughout its length as it passes Darby, Hamilton, Corvallis, Victor, Stevensville, Florence, Lolo, and finally Missoula, where the river merges with the Clark Fork. Between Stevensville and Florence the Bitterroot runs through the spectacular Lee Metcalf National Wildlife Refuge.

Though fertile, the Bitterroot is crystal clear. That's because most of its tributary streams flow from the Bitterroots. Clancy says the igneous and metamorphic rocks in the mountains make the streams unusually low in hardness and dissolved solids. "You get this mix of fertile water from the east and crystal-clear tribs from the west that makes the Bitterroot a perfect combination for trout," he says.

In the Bitterroot's middle reaches, between Hamilton and Stevensville, the riverbed is mainly small gravel and fine sand, which cause the river to continually "braid" and form new channels each year. For decades landowners have tried to "tame" the meandering river by constructing dikes; they've also dredged channels that supply farmlands with water and help keep the river from flooding homes and other development.

That's where the old "Detroit riprap" from my boyhood days entered the picture. For several years in the 1950s, says Bitterroot rancher Tom Ruffatto, the U.S. Corps of Engineers used car bodies to bolster the river's banks and prevent braiding. "They cleaned out every junkyard in Missoula," says Ruffatto, whose family's ranch contains 2.5 miles of Bitterroot frontage that includes a stretch of rusty autos anchored into the bank. "They hauled 'em up the river in train cars and dragged 'em up the river cabled together."

Public protests about the old vehicles' ugliness—not to mention pollutants leaking from the wrecks—ended the practice in the early '60s, says Ruffatto. The river has since washed away many of the old junkers.



WESTSLOPE CUTTHROAT PHOTO BY PAT CLAYTON; MAP ILLUSTRATION BY LUKE DURAN/*MONTANA OUTDOORS*

CLEARLY HAPPY Left: An angler wading the Bitterroot's crystal waters tries to hold a trout surging deep in a run near Stevensville. Above: The Bitterroot's clear waters are home to the Skwala stonefly, which hatches in March, attracting dry-fly anglers from across the West.

G. ALLEN LUM | INSET PHOTO: STEVEN AKRE

No dynamite allowed

The earliest recorded fishing accounts on the Bitterroot, in the late 19th century, reported excellent catches of plentiful native westslope cutthroat trout (then called "redbellies" by local anglers) and large bull trout. *The Weekly Missoulian* reported in September 1881: "Messrs. Ryman and Wolf...caught some 300 pounds of fish during their [two-week] trip, most of which they gave away to friends. Inside of nine hours they hooked 100 pounds of trout, 49 of which were taken during three hours fishing."

By the early 1900s, following initial stocking of nonnative rainbow and brook trout by both individuals and government agencies, newspapers and magazines were recounting tales of even more spectacular catches in the Bitterroot.

Fish conservation by local government officials apparently started in the late 1890s, when one of the first regulations on the river banned the use of "giant powder" (dynamite) for taking fish. As angling pressure increased, the state imposed more restrictive harvest regulations. In 1956 the daily limit on the Bitterroot was reduced to 15 trout; four years later it was lowered to 10.

FWP discontinued stocking trout in the Bitterroot River in 1979 after studies on other Montana streams showed that planting fish suppressed natural production of wild trout. An artificial-lures-only restriction was placed on two river stretches in 1982, and trout limits were reduced further. By this time biologists and anglers were convinced that overharvest was harming the Bitterroot trout fishery.

Today the daily limit on much of the river is three fish, only one of which can be over 14 inches, except in the 26-mile catch-and-release section from Woodside Bridge, roughly 5 miles north of Hamilton, downstream to Florence.

Since 1990 all cutthroat trout in the Bitterroot have had to be released. Starting in 1994, four years before bull trout were listed under the federal Endangered Species Act, FWP banned fishing for them in most state waters, including the Bitterroot.

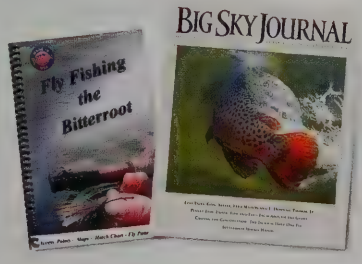
Clancy says early harvest regulations definitely protected trout so they could be caught again. But regulations over the past two decades have had mixed results. Cutthroat trout populations have increased since the 1990s, after anglers were required to release the fish. For rainbow and brown trout, numbers increased below Hamilton in both a catch-and-release section and in general regulation sections. Numbers didn't improve in a catch-and-release stretch upstream from Hamilton. "So it's not clear what role the regulations played," Clancy says. Unable to justify the catch-and-release requirement there, FWP returned the upstream stretch to general regulations in spring 2012.

In addition to studying the effects of various harvest regulations, FWP biologists are tracking the effects of whirling disease. The biologically complex disease is killing large numbers of young trout upstream from Hamilton, especially in the East Fork. Clancy says he's glad to report that infection rates are low downstream from Hamilton.

Some of FWP's most important fisheries conservation work on the Bitterroot and its tributaries is to help residential landowners find river-friendly ways to prevent their banks from eroding. "People understandably want to keep the river from eating away their property," Clancy says. "But when they import rock to riprap banks, they alter trout habitat and the way the river functions." He notes that a 2008 Montana Department of Transportation study found that 12.5 percent of both sides of the Bitterroot was lined in riprap. Residential development is also growing along the tributaries, where the Bitterroot's trout are born and live for several years.

THE LATEST ANGLING INFO

A local conservation club has recently published *Fly Fishing the Bitterroot*. Order the book at flyfishersofthebitterroot.org.



Learn more about the Skwala hatch in an article by Steven Akre in the 2012 fly-fishing issue of *Big Sky Journal*.

Clancy says he hopes he is helping the fishery by educating people about streamside habitat, implementing Montana's stream protection laws, and keeping more water and fish in the river with water leases and ditch screens. "It's a challenge, given all the new people moving into the valley," he says. "But I tell folks that protecting the Bitterroot means protecting the reason they are here in the first place. Hopefully they see the benefits of keeping things in good shape."

> "I tell folks that protecting the Bitterroot means protecting the reason they are here in the first place. Hopefully they see the benefits of that."

Water: war and peace

Some of the toughest battles FWP has fought on the Bitterroot are over water. The conflict boils down to landowners, who want water for crops or residential landscaping, versus trout, which need water to live. For decades landowners have dredged and bulldozed the riverbed to build dikes and ditches to move water from the Bitterroot to a complex irrigation system lacing the surrounding valley. That work intensified during drought years in the 1970s and '80s as landowners tried to concentrate and direct water flows to irrigate fields of alfalfa grown for hay.

Dewatering reduced the Bitterroot to a trickle in some sections between Hamilton and Stevensville. FWP studies found that low water hit juvenile trout especially hard. The small fish were forced into primary channel pools and away from brushy and rocky shorelines where they were safer from predators.

Shaken by the abuse of their beloved Bitterroot, local anglers and conservation groups joined forces to save the river. That required turning their attention to Painted Rocks Lake. Built in 1932 halfway up the West Fork of the Bitterroot, Painted Rocks holds roughly 32,000 acre-feet of water. That's enough to benefit both trout and agriculture if doled out in the right amount at the right time. In recent years anglers, landowners, FWP, and the Montana Department of Natural Resources and Conservation (which built and manages the reservoir) reached an agreement in which Painted Rocks' water is shared by trout interests and the Painted Rocks Water Users Association, an irrigation group. Both sides have agreed on the timing and amount of water releases. "The way Painted Rocks water is dealt with and managed is a unique thing about the Bitterroot," says Clancy. "In a river valley where contentious issues abound, this is one system where people cooperate to make it work."

By the look of the valley's bountiful hayfields in midsummer, it's obvious the agreement benefits farmers and ranchers. Andy

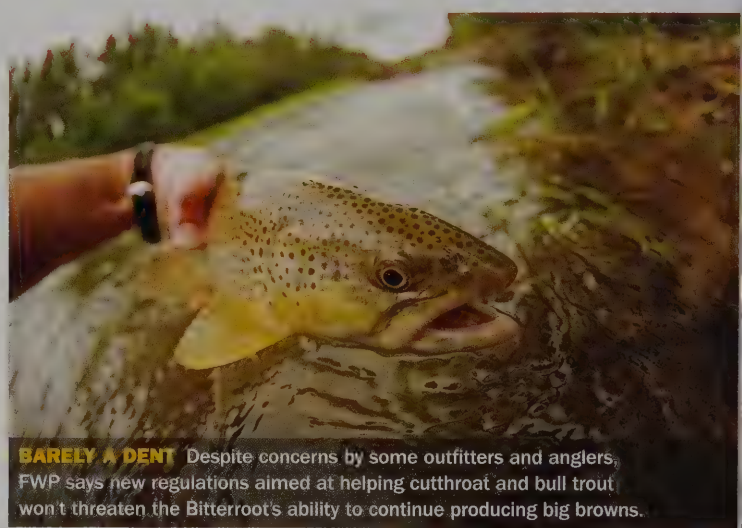
Slowing the brown trout increase could help bulls and cutthroats

The clear, cold headwaters and upper tributaries of the Bitterroot River are historical strongholds for Montana's native bull trout and westslope cutthroat trout. In recent years, anglers and FWP fisheries biologists have seen increasing numbers of brown trout that have moved up from the lower Bitterroot into these pristine waters, where the nonnative fish were once rarely found. One theory is that the warmer climate over the past decade has raised Bitterroot headwater temperatures and made them more favorable to browns.

FWP is concerned that brown trout could outcompete bulls and cutthroats and threaten state and federal efforts to conserve the indigenous species. "We have solid information that these brown trout are displacing bull trout," says Pat Saffel, FWP regional fisheries manager in Missoula. "The effects on cutthroat trout are less clear, as their numbers in tributaries seem to be holding steady. But cutthroat numbers in the mainstem Bitterroot have dropped in recent years, and we know that brown trout have replaced native cutthroats in many other large rivers in other western states."

Though Saffel has nothing against brown trout—he calls them a "superb sport fish"—he points out that the species is thriving in the Bitterroot's lower half and that cutthroat and bull trout need all the help they can get in their upstream waters.

To protect the native trout, FWP set new regulations this year that allow for an increase in brown trout harvest in the upper Bitterroot watershed. The most significant changes are on the West Fork (below Painted Rocks Reservoir) and the East Fork, where the limit went from three fish, only one over 14 inches, to three fish of any size; and on a stretch of the mainstem Bitterroot near Darby that went from catch-and-release-only to a harvest of three browns, one over 14 inches.



BARELY A DENT Despite concerns by some outfitters and anglers, FWP says new regulations aimed at helping cutthroat and bull trout won't threaten the Bitterroot's ability to continue producing big browns.

At first, news of the relaxed limits didn't sit well with some anglers and outfitters, who feared that brown trout would be overharvested. At public meetings Saffel assured them the

Carlson of Hamilton can attest firsthand that it's helping trout, too. The owner of Bitterroot Anglers, a trout outfitting operation, Carlson was one of the first professional guides on the river. He was a leader in the fight to save the Bitterroot from dewatering in the 1970s. And as head of the Ravalli County Fish & Wildlife Association's fish committee, Carlson lobbied FWP for more restrictive fishing regulations. He organized volunteers to conduct a three-year creel census that helped FWP justify and carry out regulations, including those on catch-and-release sections.

After guiding for 35 years on the Bitterroot, Carlson has seen fishing pressure there more than double, from just over 50,000 angler-days in 1982 to more than 110,000 in 2009. Yet the outfitter says the Bitterroot continues to offer superb fishing. "It's better than ever," Carlson says. "FWP's timely and prudent regulations and guaranteed in-stream flow have had a tremendous influence. It's made this a world-class fishery."

Bitterroot's brown trout population has expanded so greatly in recent years that it can handle increased harvest. "There will still be plenty of big browns for anglers to catch, especially downstream from Hamilton," he says. Studies throughout the West have shown that anglers rarely overfish brown trout, which often feed at night and hang out during the day in deep holes and under submerged logs. "They're just harder to catch," says Saffel.

Saffel maintains that conserving the Bitterroot's cutthroat trout makes sense for several reasons: "They're a great sport fish, and they add diversity and resiliency to the system." He adds that in other parts of Montana where whirling disease has ravaged rainbow populations, "cutthroats can then come in and fill that gap."

Saffel considers the Bitterroot an example of where FWP is accommodating a diversity of fisheries without having to choose one species over the other. "This is a premier trout river providing a huge amount of angling recreation, and it's also a stronghold for bull trout and cutthroat trout," he says. "We're trying to maintain all of that." ■

CLOCKWISE FROM LEFT: JEREMIE HOLLMAN; MONTANA FWP; MAUREEN AND MIKE MANSFIELD LIBRARY, THE UNIVERSITY OF MONTANA-MISSOULA

WATER MONITORS FWP fisheries biologist Chris Clancy and regional fisheries manager Pat Saffel survey a tributary running into the East Fork of the Bitterroot. They say ensuring that the Bitterroot retains enough flow for trout to survive is one of the department's top priorities.

Centuries of human use

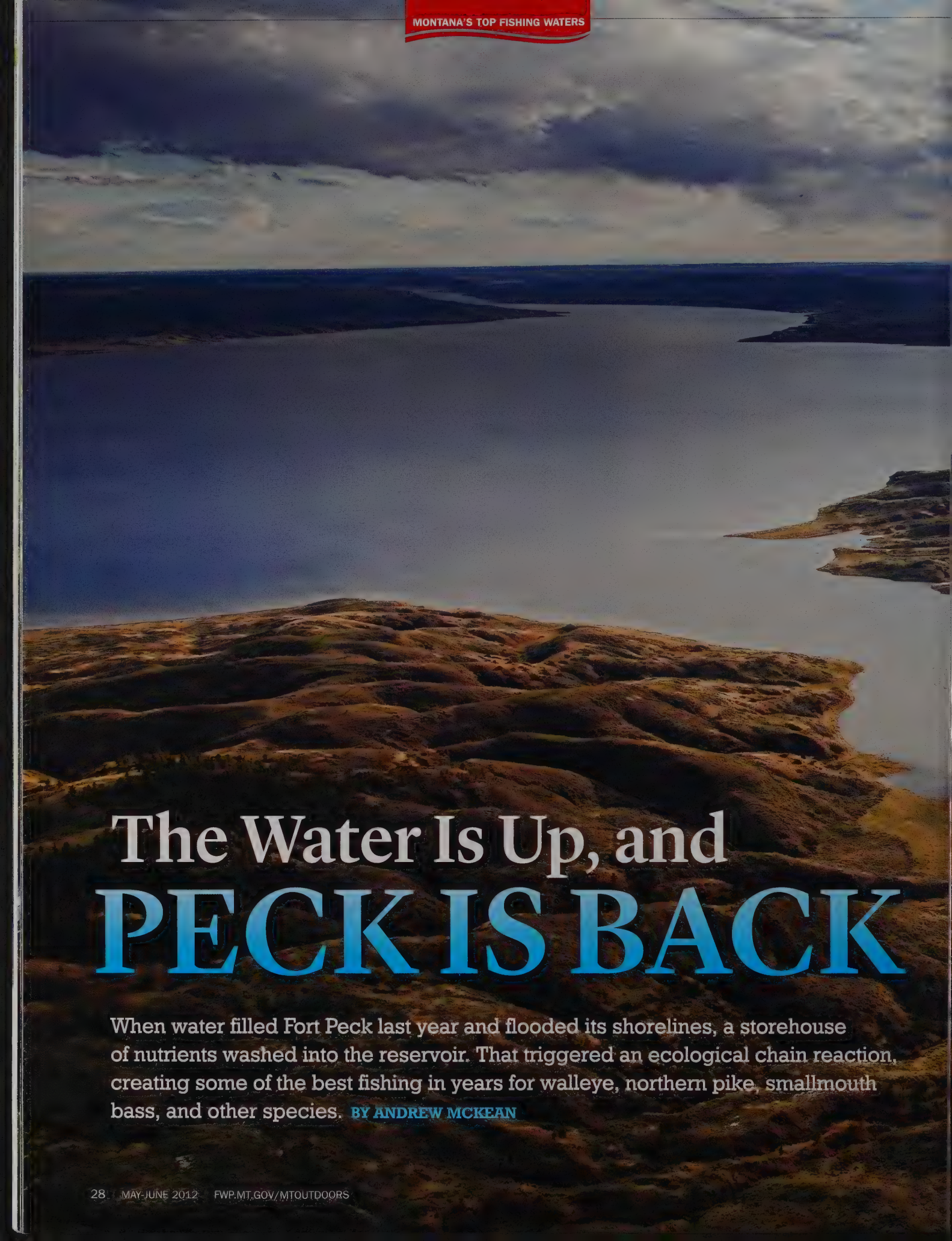
The Bitterroot Valley was the aboriginal home of the Salish Indians, also known as the Flatheads. The name Bitterroot came from a prevalent plant (later made the Montana state flower), the roots of which were a staple of the Salish diet.

In 1805, on its westward trek to the Pacific, the Lewis and Clark Expedition encountered members of the Salish Tribe at a broad meadow called Ross' Hole, near the current hamlet of Sula, on the East Fork of the Bitterroot. After a few days' march downstream, the explorers camped on Lolo Creek, a short distance from the tributary's confluence with the Bitterroot. The campsite, about 11 miles south of Missoula, is now Travelers' Rest State Park. The expedition would camp there again in 1806 on its return voyage.

In 1841, following persistent requests by the Salish, Father Pierre-Jean De Smet, a Jesuit priest, established St. Mary's Mission—the state's first church—on the east bank of the Bitterroot. After the mission closed in 1850, the Jesuits sold the property to John Owen, who founded Fort Owen, a trading post that was the first permanent white settlement in Montana. The post grew to become the town of Stevensville, while the fort itself was later turned into a state park.

An early 1900s logging operation in the Bitterroot Valley southwest of Florence

Throughout the late 19th century, the Bitterroot River and its tributaries were used to move logs downstream to mills near Missoula. Later, river water irrigated a wide range of crops including, at one time or another, apples, tart cherries, potatoes, and sugar beets. Today most of the valley's agricultural land grows alfalfa hay or has been converted into residential subdivisions.



The Water Is Up, and PECK IS BACK

When water filled Fort Peck last year and flooded its shorelines, a storehouse of nutrients washed into the reservoir. That triggered an ecological chain reaction, creating some of the best fishing in years for walleye, northern pike, smallmouth bass, and other species. BY ANDREW MCKEAN

WELCOME BACK, WATER A once-dry tributary pours water into Fort Peck Reservoir's Upper Missouri Arm in summer 2011. During just a few months, heavy rains across the surrounding watershed, along with record snowmelt in the Rocky Mountains, raised the reservoir an astonishing 14 vertical feet. The high water flooded shoreline vegetation, sending vast amounts of nutrients into the reservoir's ecosystem.

AERIAL PHOTO OF FORT PECK RESERVOIR BY CHRISTOPHER BOYER

When fishing is good on Fort Peck,

it seems like every wind-blasted point and slick-shale shoreline holds a hungry walleye.

But when fishing is slow on the sprawling northeastern Montana impoundment, anglers are left wondering: How can so much water seem so appallingly empty?

Like grain prices and weather in this wide-open land of extremes, fishing on Fort Peck tends toward the generous or the stingy.

You can predict walleye and northern pike activity with a fair degree of reliability just by looking at the reservoir's water level. When it's so low that hundreds of feet of exposed gumbo shoreline separates the sagebrush prairie from the gray-green water, chances are the bite will be off (I'll explain why in a minute). But when Fort Peck's full pool starts lapping the tops of boat ramps and water inundates bays grown over with cottonwood saplings and salt cedar, it's time to hook up your boat, stock up on minnows and leeches, and head to Montana's most underutilized fishery.

That time is right now.

Fort Peck's current high water level—and the diverse fishery it supports—justifies a trip this summer. Local anglers are saying, "Peck's back," and they prove it with photos of heavy stringers posted on tackle shop walls and Facebook pages. It's not just walleye on those stringers either, but also smallmouth bass, northern pike, catfish, and even unexpected species like freshwater drum and crappies.

Andrew McKean is editor of Outdoor Life. *He lives outside Glasgow, about a half-hour drive from Fort Peck Reservoir.*

Best and worst of times

Though often called a lake, Fort Peck is technically a reservoir, impounding the Missouri River with an earthen dam that was the world's largest when completed in 1935. The reservoir was built to hold melted snowpack gushing into the river from surrounding plains and the Rocky Mountains. That annual spring torrent flooded farmland and washed out towns across the region until Depression-era WPA workers built the dam.

Though the reservoir's water levels have risen and fallen widely over the past 70-plus years, the most extreme fluctuations occurred recently. Fort Peck set an all-time elevation record in June 2011, storing so much water from record prairie rain and snowpack, combined with above-normal mountain snowmelt, that it ran out of room. During just a few months the reservoir gained 14 vertical feet, or enough water to fill a second Canyon Ferry Reservoir, Montana's second-largest impoundment. As a result, the U.S. Army Corps of Engineers released a record amount of water through the power turbines below Fort Peck Dam and an even greater volume over the lake's emergency spillway directly into the Missouri River.

> "The manipulation of Fort Peck's water level is the most important fisheries management tool in the entire tool box."

The rise in 2011 was especially incredible considering it came after years of drought and reservoir drawdowns that left Fort Peck at a record-low elevation in 2007, just four years previous. "We've seen the worst of times and the best of times in a surprisingly short window," says Steve Dalbey, Montana Fish, Wildlife & Parks regional fisheries manager in Glasgow. "And the way the fishery responded to high water last summer and this year confirms that the manipulation of Fort Peck's water level is the most important fisheries management tool in the entire tool box."

It's also the most exasperating. That's because the Corps operates Fort Peck Dam as part of a hydrologic system extending from Montana down the Missouri River to St. Louis. The federal agency adjusts the capacity in all reservoirs along the river to balance such competing interests as barge traffic, flood control, irrigation, and sport fishing.

In other words, the Corps, not FWP, controls Fort Peck's most important fisheries management tool.

The up-and-down effect

Because Fort Peck's surrounding landscape is less fertile than what's found in states to the east, the water has fewer nutrients, says FWP reservoir biologist Heath Headley. Fort Peck can't produce the same biomass of fish per acre as, for instance, Ohio's portion of Lake Erie or Minnesota's Mille Lacs Lake. But Fort Peck can receive an important influx of nutrients if water levels rise and fall at the right times. It has to do with shoreline vegetation.

Ideally, says Headley, the Corps would gradually draw the reservoir down several feet beginning in late summer and leave it there for a year or two, allowing shoreline vegetation to take root and grow. "Then the best thing would be to raise the water level several feet in March every couple of years," he says.

That would do two things. First, the well-established shoreline vegetation would provide a massive nutrient boost, kicking the reservoir's food chain into high gear. When water levels rise, shoreline plants drown and then decompose. The decayed matter provides food for zooplankton and other microorganisms at the base of the food chain. Newly hatched walleye and other fish species eat zooplankton. So do aquatic insects. Minnows eat the insects, and predator fish such as walleye and pike eat the minnows.

Second, water raised in early spring corresponds with the yellow perch and northern pike spawn. Those species lay their eggs on sturdy underwater structures, such as submerged sagebrush. "If the reservoir elevation comes too late in spring, then perch

CLOCKWISE FROM TOP LEFT: NATHAN COOPER; CRAIG & LIZ LARCOM; CRAIG & LIZ LARCOM

PECK'S FISHY SMORGASBORD Though the reservoir is best known for its walleye, other species abound too. Clockwise from upper left: Both black and white crappies, caught anywhere anglers find submerged trees or other woody structure, produce white fillets prized for their sweet, delicate flavor. Smallmouth bass, some topping 22 inches long, are pound-for-pound one of the hardest-fighting fish to swim in freshwater; the current state record, a 6.66-pounder caught in 2002, came from Fort Peck. Channel catfish, another strong and delicious fish, are generally caught with bait but will take a jig.

A guide to fishing Fort Peck's diversity

Fort Peck is Montana's most diverse fishery, containing 47 native and introduced species. Many are forage fish—shiners and chubs—but most species are big enough to grab an angler's bait and put up a fight. Toss a worm-tipped jig over the side of a boat and you'll have no idea what might bite. Game species actively managed and inventoried by FWP include walleye, northern pike, Chinook salmon, lake trout, smallmouth bass, sauger, and channel catfish. Others that anglers regularly catch include black bullhead, sunfish, shovelnose sturgeon, and freshwater drum. Here's a snapshot of what's biting—and where and when—on Fort Peck Reservoir:

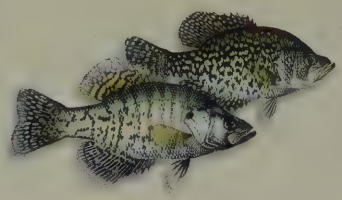
Walleye

Fort Peck's iconic species is well distributed throughout the reservoir. For anglers after truly big fish—10 pounds or more—FWP reservoir biologist Heath Headley recommends the Upper or Lower Big Dry Arms starting around Father's Day. "Because this is right after the spawn, most of the larger female walleye are still shallow and easier to catch than later in the year when they suspend in deep water," he says.

In late June through July, says Headley, the hottest walleye bite tends to be in the middle reach of the reservoir, from Duck Creek to Hell Creek State Park.

Crappie

First stocked in the 1950s, both white and black crappies hang out near submerged woody structure, such as underwater logs, which are few during low-water years. But when reservoir levels are up, there's plenty of submerged woody structure to attract these tasty panfish. Best spots are the upper main-reservoir arm, especially in the Fourchette Bay area uplake to Crooked Creek. Headley recommends that crappie anglers look around old cottonwood stands flooded when Fort Peck Dam was built 70-plus years ago. "Some old cottonwood trees are still standing under the surface, and crappies love them. Trees flooded in the past few years are also good spots to try."



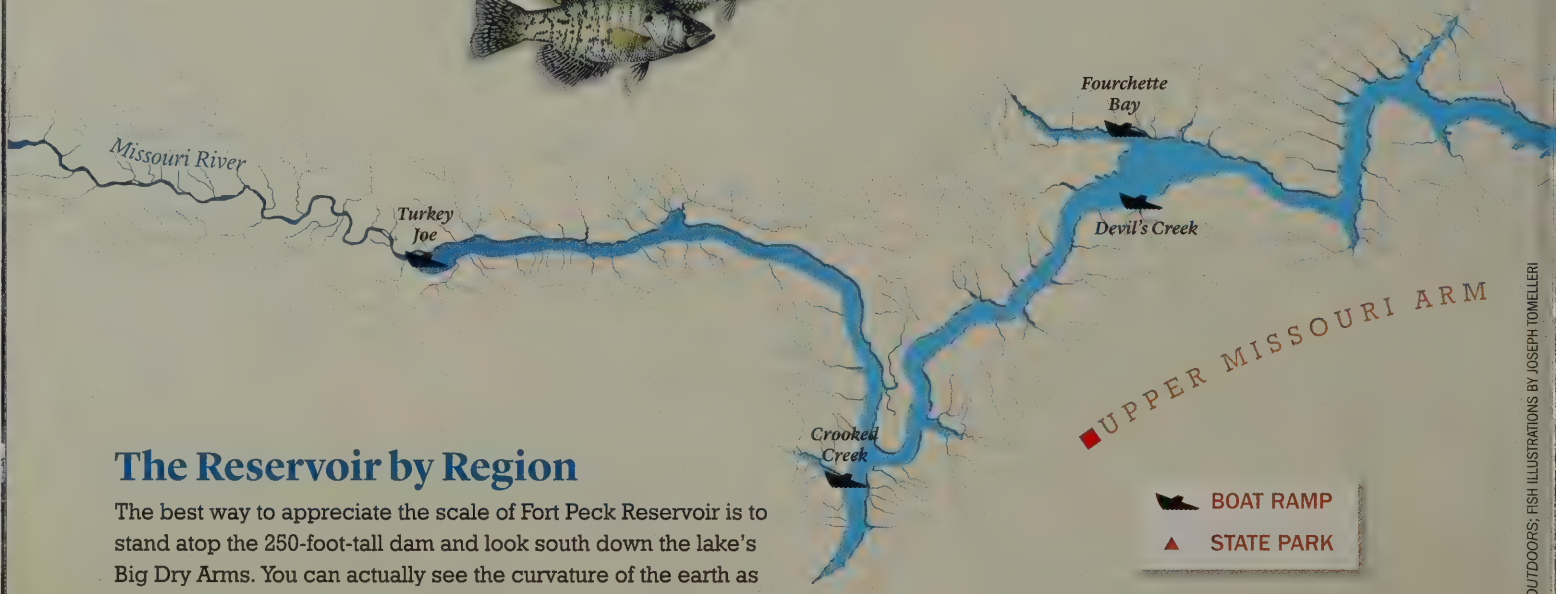
Smallmouth bass

As Fort Peck's most self-sufficient game species, the smallmouth bass is relatively immune to low-water cycles. "Smallmouth bass are one of the most abundant game fish we collect in our annual seine surveys," says Headley. "And they're still a relatively new species and haven't plateaued in terms of abundance."

Hotspots for smallmouth numbers—and trophy-sized fish—are the Upper Big Dry Arm and the main-reservoir arm from Gilbert Creek uplake to Crooked Creek.

Freshwater drum

Possibly the most neglected fish on Fort Peck is the drum. This cousin to the saltwater redfish has delicious, white, bone-free fillets. Drum bite leeches and worms, put up a feisty fight, and grow to over 15 pounds. Anglers generally catch drum accidentally while fishing for bass or walleye with bait-tipped spinner rigs along submerged rubble piles. The best area for big drum is the Upper Missouri Arm from Bone Trail to Turkey Joe.



The Reservoir by Region

The best way to appreciate the scale of Fort Peck Reservoir is to stand atop the 250-foot-tall dam and look south down the lake's Big Dry Arms. You can actually see the curvature of the earth as the water bends out of sight toward Nelson Creek and the mouth of Big Dry Creek, some 40 miles over the horizon. The habitat of the Big Dry Arms—muddy water with numerous rock shelves and sunken humps—varies significantly from the habitat of Fort Peck's main-reservoir arm, with its deeper, clearer water. The reservoir's vast size and wide variation is why Headley likes to define Fort Peck by specific regions. His guide is useful for anglers:

- **Upper Missouri Arm:** *Snow Creek uplake to the head of the reservoir*
- **Middle Missouri Arm:** *The Pines uplake to Snow Creek*
- **Lower Missouri Arm:** *Face of Fort Peck Dam over to Bear Creek and up the main arm of the lake to The Pines*
- **Lower Big Dry Arm:** *Bear Creek and Haxby Point uplake to Rock Creek*
- **Upper Big Dry Arm:** *Rock Creek upstream to the mouth of Big Dry Creek*

MAP GRAPHIC BY LUKE DURAN/*MONTANA OUTDOORS*; FISH ILLUSTRATIONS BY JOSEPH TOMELLERI

Chinook salmon

Landlocked king (Chinook) salmon occupy the lower part of Fort Peck nearest the dam. These coldwater species don't receive much attention until late summer, when adult fish congregate along the face of the dam to swim in the reservoir's most abundant coldwater habitat.

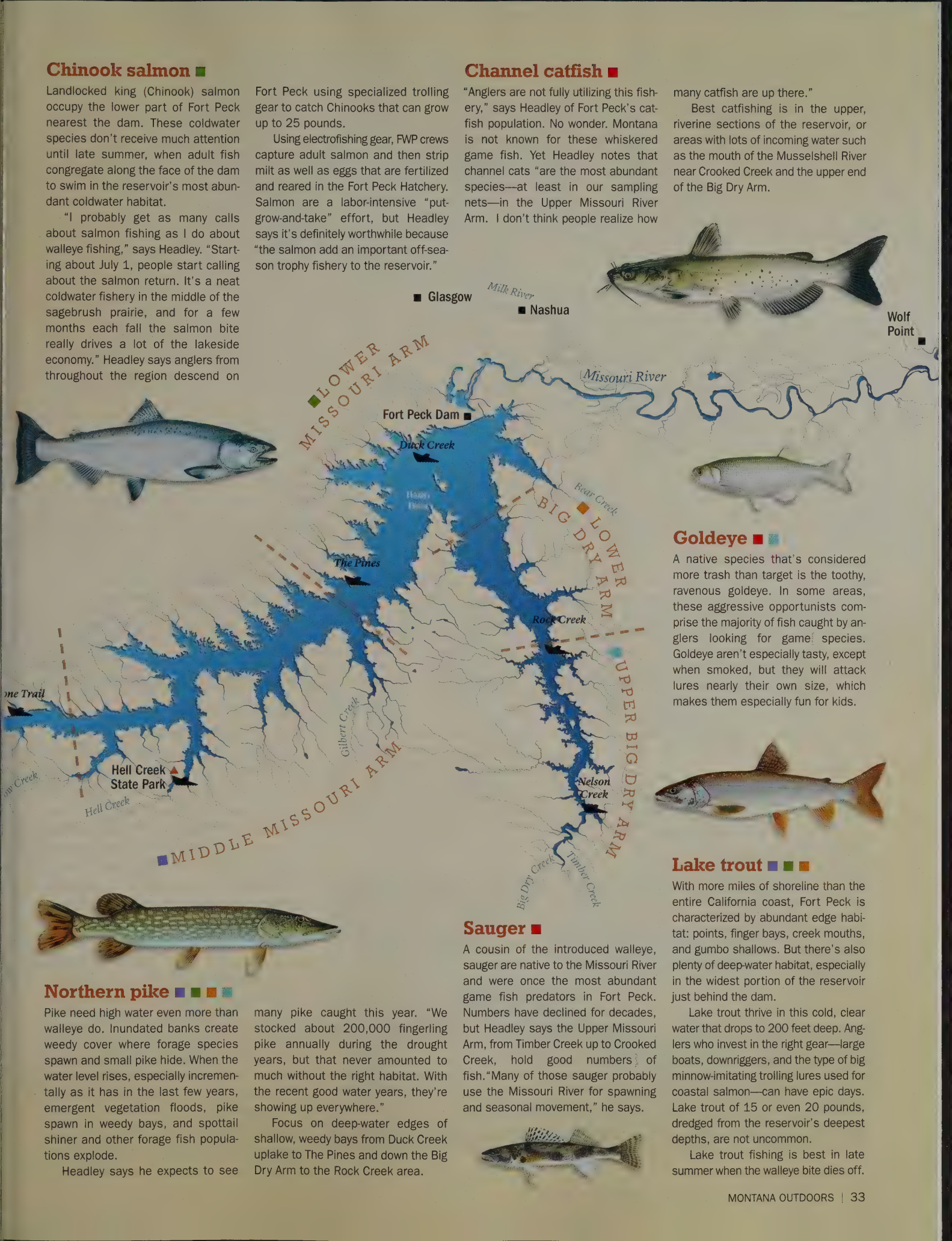
"I probably get as many calls about salmon fishing as I do about walleye fishing," says Headley. "Starting about July 1, people start calling about the salmon return. It's a neat coldwater fishery in the middle of the sagebrush prairie, and for a few months each fall the salmon bite really drives a lot of the lakeside economy." Headley says anglers from throughout the region descend on Fort Peck using specialized trolling gear to catch Chinooks that can grow up to 25 pounds.

Using electrofishing gear, FWP crews capture adult salmon and then strip milt as well as eggs that are fertilized and reared in the Fort Peck Hatchery. Salmon are a labor-intensive "put-grow-and-take" effort, but Headley says it's definitely worthwhile because "the salmon add an important off-season trophy fishery to the reservoir."

Channel catfish

"Anglers are not fully utilizing this fishery," says Headley of Fort Peck's catfish population. No wonder. Montana is not known for these whiskered game fish. Yet Headley notes that channel cats "are the most abundant species—at least in our sampling nets—in the Upper Missouri River Arm. I don't think people realize how many catfish are up there."

Best catfishing is in the upper, riverine sections of the reservoir, or areas with lots of incoming water such as the mouth of the Musselshell River near Crooked Creek and the upper end of the Big Dry Arm.



Goldeye

A native species that's considered more trash than target is the toothy, ravenous goldeye. In some areas, these aggressive opportunists comprise the majority of fish caught by anglers looking for game species. Goldeye aren't especially tasty, except when smoked, but they will attack lures nearly their own size, which makes them especially fun for kids.

Lake trout

With more miles of shoreline than the entire California coast, Fort Peck is characterized by abundant edge habitat: points, finger bays, creek mouths, and gumbo shallows. But there's also plenty of deep-water habitat, especially in the widest portion of the reservoir just behind the dam.

Lake trout thrive in this cold, clear water that drops to 200 feet deep. Anglers who invest in the right gear—large boats, downriggers, and the type of big minnow-imitating trolling lures used for coastal salmon—can have epic days. Lake trout of 15 or even 20 pounds, dredged from the reservoir's deepest depths, are not uncommon.

Lake trout fishing is best in late summer when the walleye bite dies off.

Northern pike

Pike need high water even more than walleye do. Inundated banks create weedy cover where forage species spawn and small pike hide. When the water level rises, especially incrementally as it has in the last few years, emergent vegetation floods, pike spawn in weedy bays, and spottail shiner and other forage fish populations explode.

Headley says he expects to see many pike caught this year. "We stocked about 200,000 fingerling pike annually during the drought years, but that never amounted to much without the right habitat. With the recent good water years, they're showing up everywhere."

Focus on deep-water edges of shallow, weedy bays from Duck Creek uplake to The Pines and down the Big Dry Arm to the Rock Creek area.

Sauger

A cousin of the introduced walleye, sauger are native to the Missouri River and were once the most abundant game fish predators in Fort Peck. Numbers have declined for decades, but Headley says the Upper Missouri Arm, from Timber Creek up to Crooked Creek, hold good numbers of fish. "Many of those sauger probably use the Missouri River for spawning and seasonal movement," he says.

and pike have already finished spawning, and their spawn isn't nearly as successful as it could be," Headley says.

Unfortunately, the drought starting in the early 2000s caused the reservoir's water level to drop and kept it low for years. Fort Peck marinas looked like ghost towns, and boat ramps sat stranded hundreds of yards from the water's edge. Vegetation grew on shore, but it never flooded. The low water also exposed large expanses of gravel and rock that during most years are critical spawning and rearing areas for several fish species.

The drought years were anomalies, but even in normal water years the reservoir's water levels are often tough on fisheries, says Headley. Each summer the Corps lowers Fort Peck to provide water for downstream users. Then, the following spring—usually too late to benefit perch and pike—it allows the reservoir to fill up again with runoff, only to open the floodgates a few months later to send the stored water downstream. "That constant up and down in lake elevation makes the varial zone [periodically inundated shoreline] unproductive for vegetation," Headley says. Shoreline plants can't take root, he explains, when they get drowned twice a year.

The most recent drought now behind them, Headley and Dalbey are celebrating the high water lapping Fort Peck's shoreline. The reservoir's water levels were raised incrementally in 2008, '09, and '10, "just like we wanted," Dalbey says. Then came the floods of 2011, filling the reservoir to its brim.

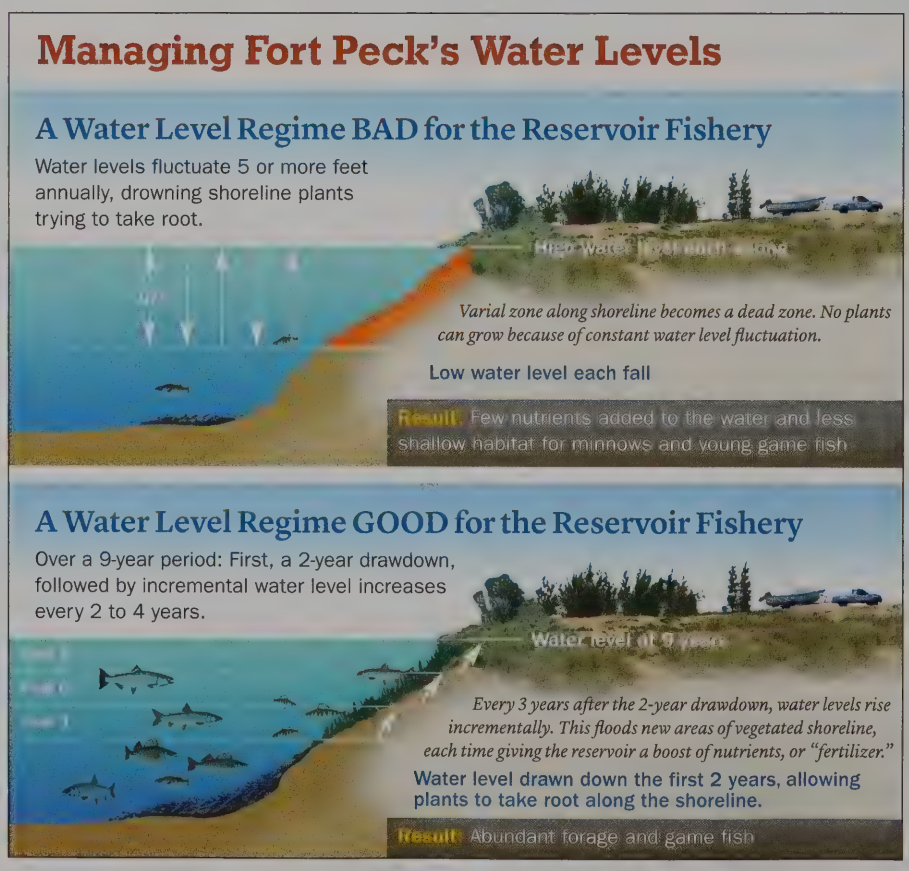
> "When there's so much natural food in the system, walleye start ignoring bait and lures."

Dalbey explains that incremental water level increases bring in a new crop of nutrients gradually over a period of years, rather than all at once. "Think of shoreline vegetation as 'fertilizer' for the reservoir," he explains. "If you use it all up in one year, with too much of a water level rise, then you've got nothing left over. But if you can draw that 'fertilization' out over several years, the net benefits to the reservoir are much greater."

The benefits to anglers are greater too. The revitalized reservoir ecosystem produces more and healthier fish. And much of the renewed ecological activity occurs near shore, making game fish more accessible to anglers.

Up to a point. Dalbey is quick to note that high water is always great for fish, but not always for fishermen. "After a few years of good forage production, there's a tipping point, when there's so much natural food in the system that walleye and other predator species start ignoring bait and lures and can be tough to catch," he says. "When walleye growth rates are at their highest, angler catch rates are often at their lowest."

The latest water cycle has proved to Dalbey and Headley that the pace and pattern of water fluctuations is critical to maintaining Fort Peck's high standard of fishing—even more so than the number of walleye stocked by the department or the number of fish that anglers keep.


Managing Fort Peck's Water Levels
A Water Level Regime BAD for the Reservoir Fishery
Water levels fluctuate 5 or more feet annually, drowning shoreline plants trying to take root.
Varial zone along shoreline becomes a dead zone. No plants can grow because of constant water level fluctuation.
Low water level each fall
Result: Few nutrients added to the water and less shallow habitat for minnows and young game fish
A Water Level Regime GOOD for the Reservoir Fishery
Over a 9-year period: First, a 2-year drawdown, followed by incremental water level increases every 2 to 4 years.
Every 3 years after the 2-year drawdown, water levels rise incrementally. This floods new areas of vegetated shoreline, each time giving the reservoir a boost of nutrients, or "fertilizer."
Water level drawn down the first 2 years, allowing plants to take root along the shoreline.
Result: Abundant forage and game fish

Stock, yes, but what size?

Others aren't so certain. Like many Fort Peck walleye anglers, Steve Harada is as much interested in stocking levels as he is in water levels. The former state president of Walleyes Unlimited credits the current fishing bonanza mostly to the walleye hatched and raised at the Fort Peck Hatchery and stocked several years ago. "We've had a good year or two of fishing, but I don't think Fort Peck has reached its full potential," says Harada, who helped lead the effort to build the $26 million fish-rearing facility. "If the hatchery could produce walleye to its full capacity, I think the strong fishing could continue."

Headley and Dalbey agree that the hatchery is critical to maintaining Fort Peck's renowned walleye fishery. But exactly what number and size of walleye should be stocked is still open to debate. The hatchery produces both walleye fingerlings and mosquito-sized fry. An argument for stocking fingerlings is they are bigger and more likely to survive. "One problem is that it's costly to

WATER LEVEL ILLUSTRATION BY LUKE DURAN/*MONTANA OUTDOORS*; PHOTO BY NATHAN COOPER

STAR OF THE SHOW Fort Peck gets nowhere near the national attention of famous walleye waters like Ohio's portion of Lake Erie or Minnesota's Mille Lacs Lake, both close to large metropolitan areas. But Peck catch rates, average fish size, and trophy catches rival those of the headliner walleye waters. Unlike those lakes, Fort Peck has little natural walleye reproduction and requires annual stocking of fry or fingerlings. A new management plan outlines stocking levels that don't end up producing too many predator fish, which could deplete the lake's forage population. "We definitely don't want to endanger Fort Peck's ability to continue producing fat, healthy walleye," says FWP regional fisheries manager Steve Dalbey.

raise them to that size," Dalbey says. Even though fry survival is much lower (because the fish are tinier and more vulnerable), FWP can stock far more of the newly hatched fish for a given amount of money. If environmental conditions are right, as they have been the past few years, large numbers of fry will end up growing large enough to bite angler's lures.

Then again, some years it may make more sense to stock fingerlings. "The problem is no one knows what effect stocking has on Fort Peck's walleye population, or when it makes sense to stock fingerlings versus fry," says Dalbey. FWP has recently begun a four-year study to find out. "Stocking is definitely critical, but to make the best use of license dollars we want to find the right mix of planting fry and fingerlings," he says.

All this talk about walleye reflects the importance of *Sander vitreus* on the big lake. Though Fort Peck has a dozen other species capable of producing great fishing—the reservoir holds seven current state fish records—it's the glassy-eyed walleye that drives angler interest and FWP management priorities. Headley says he devotes roughly 85 percent of his time to walleye management, despite a dozen other species arguably in greater need of attention.

Keeping close watch on these other species is Jim Schultz. The Fort Peck angler has fished the big reservoir for three decades, and he says when the angling is hot, it's among the best fishing waters in the country. "In terms of numbers of fish and size of big fish, it's off the charts," says Schultz. "And not just walleye. There's great fishing for northern pike, smallmouth bass, lake trout, and salmon."

Headley agrees. "Right now is the time to take advantage of good water conditions and great fishing on Fort Peck. We are in the high arc of a water cycle," he says. The biologist knows that by next year increased forage abundance will lower angler catch rates. Also, another drought will no doubt be back, and with it lower lake levels and fish numbers. "When the dry times return, we won't have the sort of abundance we're seeing in pretty much every game fish that swims in this reservoir," he says.

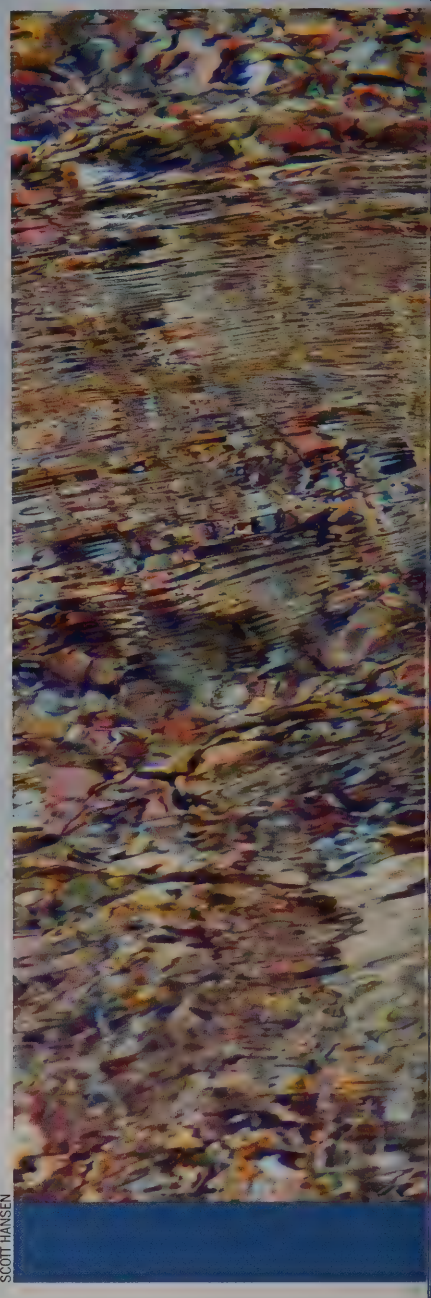
In 2011 FWP completed a ten-year management plan for Fort Peck's fisheries. It provides a road map for FWP biologists as they manage the lake's diverse fish species. The plan is based on input from anglers, businesses, and staff of other state and federal agencies, as well as detailed analysis of the reservoir's ecological conditions. "It incorporates local concerns, our goals, and what the reservoir can and can't biologically produce," says FWP biologist Heath Headley. "It then maps out stocking levels, lake level management recommendations, and other things we do to manage these species."

Read the plan by visiting the fwp website at fwp.mt.gov and searching for "Fort Peck."

HIGH-ALTITUDE TROUT

What backpackers and hikers have discovered about the state's fish-rich alpine lakes.

BY MIKE RAETHER



SCOTT HANSEN

The long hike in was paying off like Apple stock. As I released yet another gullible westslope cutthroat and rinsed my hands in the chilly waters of the mountain lake, I wondered how many trout I had caught during the sun-drenched afternoon. Was it 30? 40? I couldn't remember, and it didn't matter. It was just another great day of fishing one of Montana's alpine treasures.

Later, at my campsite, I savored the splendor of the wild surroundings while enjoying a meal of fresh-caught cutthroat. Had I died and gone to heaven?

Many outdoors magazines this time of year carry articles featuring Montana's blue-ribbon trout rivers. What you rarely read about is our incredible mountain trout lake fishing. What a shame. Far above the crowded rivers and their persnickety trout are hundreds of little lakes packed with eager fish. An invigorating summer hike or backpacking trip through Montana's backcountry often yields excellent fishing surrounded by breath-snatching natural beauty. All you need is an accurate map, a willingness to walk for an hour or two, and a desire to catch trout—lots of trout.

ABOVE THE CLOUDS

"Once you put your feet on the trail, it's like discovering the real Montana," says Pat Saffel, Montana Fish, Wildlife & Parks regional fisheries manager in Missoula. "You climb that last switchback and then the lake comes into view—it's like going back in time. The fishing is usually good and catch limits are liberal, so it's okay to keep and eat some of your catch." Saffel agrees that one of the greatest benefits of fishing alpine lakes is a meal of fresh trout, which often have delectable pink meat that comes from eating zooplankton and scuds (freshwater shrimp).

According to Jim Vashro, FWP regional fisheries manager in Kalispell, Montana contains more than 1,000 mountain lakes that hold productive trout fisheries. Many were barren of fish until the department began stocking trout. "The first plantings, about 100 years ago, were carried out by horse packers or hikers sturdy enough to pack in fingerlings in milk cans," says Vashro. "They were called the 'milk can brigades.'" Fish planting by fixed-wing aircraft followed, but swooping a small plane in and out of steep-sided alpine lakes was challenging. Vashro says some fingerlings ended up in treetops rather than in lakes. "Next we used helicopters," he says. "They proved safer and more successful, and up to eight lakes could be planted in one flight."

As a result of this work, many mountain lakes now have self-sustaining trout populations. Lakes where trout can't naturally reproduce receive periodic stocking to maintain the fishery. FWP primarily stocks lakes most accessible to and popular with anglers, planting fish every three to six years. Vashro says the management target for most alpine lakes is 100 fingerlings stocked per surface acre.

Low water fertility and long alpine winters make it tough for mountain trout to grow as quickly as their brethren in the warmer valley rivers. Three years following a planting, trout in mountain lakes run 8 to 10 inches long. They continue to grow until age six, when they reach 14 to 16 inches. After that most die of old age.

According to Vashro, some people don't believe stocking is appropriate in historically fishless lakes because the trout might alter

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SWIMMING IN AIR The crystalline water of backcountry lakes reveals fish and bottom substrate with startling clarity. Trout like this cutthroat often cruise close to shore, making them easy targets for beginners unable to cast far. Flies, lures, and bait all work well for mountain trout.

indigenous communities of plankton, insects, and amphibians. Some oppose stocking in a designated wilderness because it manipulates the area's natural state. "Even though there's criticism of stocking in wilderness, surveys show that fishing is one of the most desired activities of most backcountry hikers. Those stocked lakes are definitely appreciated and used," says Vashro.

Out of respect for wilderness values, planting trout is allowed only where the practice was established before the area was officially designated as wilderness. FWP only uses traditional methods of transporting fish such as horses and even backpacks, just like a century ago. "And most wilderness lakes are intentionally left fishless," says Vashro.

Montana's greatest concentration of alpine lakes is in the Absaroka-Beartooth Wilderness southwest of Billings, straddling the Montana-Wyoming border. These popular lakes contain a salmonid diversity that includes Yellowstone cutthroat trout, golden trout, and arctic grayling, says Ken Frazer, FWP regional fisheries manager in Billings. Like elsewhere in Montana, some of the Absaroka-Beartooth's roughly 300 trout lakes produce trout naturally and some are stocked. The 114 stocked lakes are planted with trout every three to eight years.

TREASURE HUNT

Half the fun of fishing mountain lakes is finding them. I start my research by exploring U.S. Forest Service and wilderness maps for likely destinations. These are available at any Forest Service office or can be purchased on-line (see sidebar on page 39). After finding a few potential lakes on a map, I search for information about trails leading to the waters. I've had my best luck calling or visiting area Forest Service offices, which usually have valuable information about trails and destinations—as well as important safety tips.

A few years ago while preparing to hike to a pair of alpine lakes, I decided at the last second to call the local Forest Service office to see if they had any new information. I learned that a rowdy bear had ransacked a hiker's backpack near the lakes just a few

days before, convincing me that a trip to another lake would be a safer choice.

Other great resources include the many books on Montana hiking and backpacking found at libraries, bookstores, or on-line.

FWP provides abundant resources for the alpine angler. I never visit any new mountain lake without first checking out the department's website. FWP's Montana Fishing Guide search page has specifics on every mountain lake that contains trout, including species present and stocking history. With this information I can usually predict the size and relative abundance of trout in a particular lake. FWP's website also offers a free downloadable guide to many of the lakes in the Absaroka-Beartooth Wilderness (see sidebar on page 39).

HOW TO CATCH ALPINE TROUT

Anglers have three options: fly-fishing, spin-fishing, or bait fishing. My pick for fly gear is a 3-weight rod with floating line, 7.5-foot leader, and 6X tippet. I often pack a second reel spooled with sink-tip line for when fish are deeper. I usually use terrestrial patterns such as ants and grasshoppers, nymphs such as a #12 or #14 brown Hare's Ear (with or without the bead head), and #12 or #14 pink scuds. Royal Wulff and Elk Hair Caddis dries also do well. Flies are lightweight, so I always bring plenty.

For spin fishing, try a #2 Mepps Aglia, #1 or #2 Blue Fox, or ⅛- or ¼-ounce Rooster Tail. John Fraley, a mountain lake fishing expert who works for FWP in Kalispell, suggests using a ¼-ounce Kamlooper spoon, which he calls "the best cutthroat trout lure ever made." For spinners, I prefer the more somber color combinations with silver or bronze blades. My favorite is the ⅛-ounce black Rooster Tail with a silver blade, but if that fails I try different color combinations until something starts catching fish.

Many mountain lakes have steep or brushy shorelines, making fly casting difficult. In those cases, a better way to get flies to trout is with an ultralight backpacking rod paired with an ultralight spinning reel filled with 4-pound-test monofilament line. Thread the end of the line through a clear plastic spin-fishing bubble, leaving about 5 to 6 feet of line, to which you tie the fly. If you need to fling the fly out even farther, add water to the bubble to increase casting weight. Usually I start with a nymph and sometimes add a small split shot sinker about 18 inches up the line to pull the fly down closer to where fish feed, especially if the water is choppy. The retrieve should always be a slow crawl.

Ultralight spin-fish outfits make catching small fish fun and larger fish a heart-stopping thrill. A few years ago while fishing a lake in the Bitterroot Mountains, my nymph was inhaled by an energetic cutt-bow (cutthroat x rainbow hybrid) that turned out to be 18 inches long. Immediately after I hooked it, the fish made a powerful 30-yard run across the lake. It took several minutes to work the trout back toward me, only to have it surge away two more times. Finally the fish tired and I was able to slide it up onto shore.

For mountain trout anglers who prefer bait, try half a night crawler on a single hook without any additional weight. Use the casting bubble to get some distance. Cast it out and let the bait sink gradually. Bear in mind that fish caught by bait are often hooked too deep to release unharmed. I suggest using a #10 straight shank circle hook, which catches fish in the mouth instead of the throat or gullet, allowing for easy and harmless release.

Regardless of the fishing method you choose, keep your lines and leaders light: 4- or 6-pound-test. Otherwise fish can see the line in the clear water and will stay away from your offering. Alpine fish are not especially bright, but they can be line shy.

DAN B. TAYLOR

My favorite way to cook trout is by poaching. Into my lightweight 7-inch titanium frying pan I place two or three small trout, gutted and with heads and tails removed. I add an inch of water, place the pan over a backpacking stove, and heat. The trick is to *simmer* the trout for a few minutes. Be careful not to let the water come to a rolling boil or it will break the fish apart and you'll end up with trout stew. Use a small plastic spatula to gently press the fish flat as they cook and carefully turn them once.

The fish are done when the dorsal fin comes out with a light tug, usually after about ten minutes of cooking. Slide the trout gently onto a small plate, sprinkle with salt and pepper, and enjoy a meal only alpine lake fishing can offer.

Want to help FWP preserve and manage alpine trout lakes? Take part in the Angler Fishing Log Program. Participants write down their mountain lake angling activities in a logbook provided by FWP and then send it to the department at the end of the year. Jim Vashro, FWP regional fisheries manager in Kalispell, says he and other fisheries managers and biologists use the records to learn what's occurring at mountain trout lakes so they can decide how best to manage the fisheries. Sign up on-line at fwp.mt.gov/fishing/guide/fishingLog/default.html, or call FWP at (406) 444-2545.

Mike Raether is a writer in St. Regis.

LAKESIDE Left: Many mountain lakes are ringed with dense brush, making casting a challenge and bear encounters more likely. Right: Though the highest alpine lakeshores are barren of trees, reaching prime fishing spots is hard due to steep talus banks. Fortunately, the trout are usually eager to take a fly or lure, and fishing from a single spot will often spell success.

JOHN FRALEY/FWP

Mountain Fishing Lakes Resources

- USDA Forest Service: www.fs.fed.us/maps/
- USDA Forest Service, Northern Region: (406) 329-351 Montana office: Federal Building, 200 East Broadway, P.O. Box 7669, Missoula, MT 59807-7669
- FWP Fishing Guide: fwp.mt.gov/fishing/guide/
- FWP Absaroka-Beartooth Mountain Lakes Guide: fwp.mt.gov/regions/r5/mountainlakes.html
- *Fishing the Beartooths*, by Pat Marcuson
- *The Montanans' Fishing Guide, Volume 1*, by Dick Konizeski
- *Fly-Fishing the Rocky Mountain Backcountry*, by Rich Osthoff

Waterfowl in bloom

By Bruce Auchly

By now, little gosling balls of fluff are everywhere.

Where I live in north-central Montana, goose hatching peaks from the end of April to the first week of May, and the parades of goslings usually appear around mid-May. That means the mother goose began incubating her clutch of typically six eggs at the end of March. Duck hatching peaks from late May to early June.

Though both are classified as waterfowl, geese and ducks are different with regard to nesting habits. Even among duck species there are differences. Let's begin with geese.

In north-central Montana, it's all Canada geese all the time. Other waterfowl species, like snow geese and most ducks, migrate through. But honkers, along with some mallards, live throughout the year in areas with open water. Even in winter Canada geese and mallards stick around, though their numbers drop with too much cold and snow. During years when several weeks of subzero temperatures freeze large areas of the Missouri River and deep snow covers grain stubble fields, many mallards and honkers move farther south. Fortunately, these conditions aren't all that common.

By March Canada geese have begun to nest. Though they especially like islands, the birds will choose any area near water with an elevated spot that has sparse vegetation so they can see danger approaching. Woe to the red fox that tries to take on a mated pair of honkers guarding a nest. Woe also to the unwary angler wading too close.

Geese usually defend their nest unless the threat is severe. Ducks won't defend a nest; they just leave. Then again, geese usually do not re-nest, while ducks do, so in the end both types of waterfowl have enough intact nests.

Predators abound. Coyotes are thought to be big threats to nesting waterfowl, but it turns out they often are not the villains many people take them for. While coyotes will not pass up an easy meal of anything, they are first and foremost rodent exterminators.

The animals that take the biggest toll on ground-nesting waterfowl—by eating eggs and killing ducklings and brooding hens—are red foxes, raccoons, skunks, and any member of the weasel family in the neighborhood. And that's just the wild mammals. There are also hawks, owls, magpies, crows, and roaming house cats and dogs.

No wonder nesting success for ducks ranges so widely, from 15 percent to 60 percent. Geese, barring severe weather like a spring blizzard, are much more successful at nesting, usually with a 50 percent or better success rate.

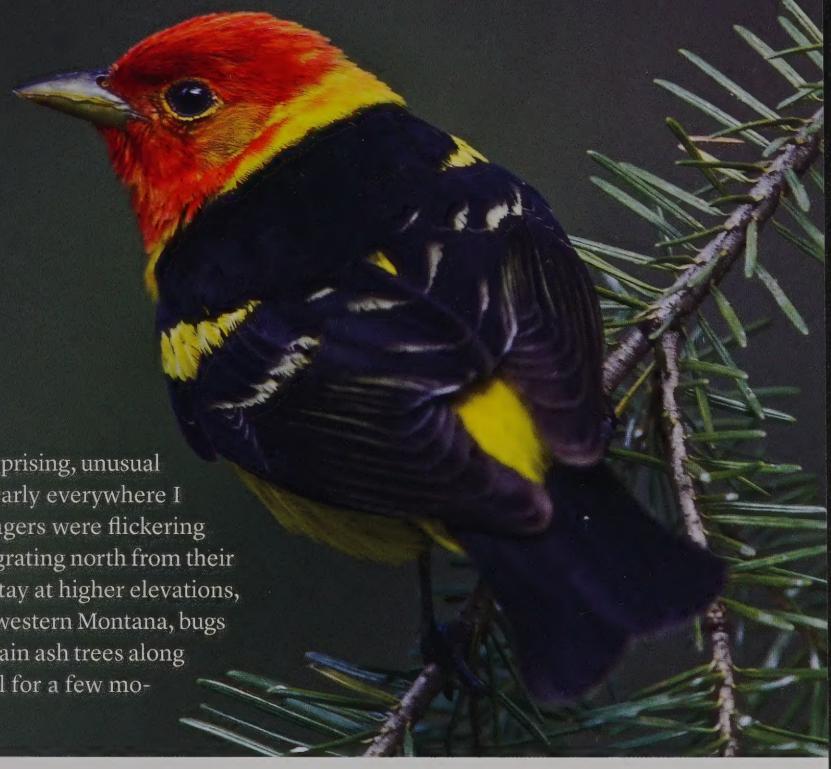
Speaking of ducks, there are two general categories: puddle ducks and diving ducks. The divers—lesser scaup (bluebills), redheads, and canvasbacks—are rarely seen when nesting. They nest next to big bodies of water far from most humans.

Puddle ducks, such as teal, mallards, and gadwalls, nest in grassy upland habitat, sometimes with no water in sight. That's why people sometimes find a mallard nest in the middle of town or in the prairie up to a mile away from a pond or marsh.

Though puddle ducks don't require nearby water for nesting, they do need tall prairie grass, and lots of it. By building her nest in the middle of a large, grassy area, the hen keeps herself and her eggs safe from predators hunting the water's edge and field perimeters. Once the ducklings hatch, the water becomes a safe haven—as long as they can avoid upland and avian predators while making the long and perilous journey to get there. When you see a hen and her ducklings crossing a road in town, that's where they're heading.

It's a tough life for a goose or a duck. But when I watch a migrating flock fly over a northern marsh at sunrise, it seems like the ones that survive sure have fun.

Bruce Auchly manages the regional Information and Education Program in Great Falls.



Western tanager

Piranga ludoviciana

By Dave Stalling

A few springs ago, downtown Missoula was graced with a surprising, unusual display of brilliant red-orange and yellow highlights. Nearly everywhere I looked along the Clark Fork River, colorful western tanagers were flickering among the trees and brush. The sparrow-sized songbirds were migrating north from their wintering grounds in Mexico and Central America. Usually they stay at higher elevations, in conifer forests. But because that spring was exceptionally wet in western Montana, bugs were everywhere. I could see the birds eating aphids on the mountain ash trees along the river. Watching those brightly colored tanagers made me feel for a few moments like I was in the tropics.

Identification

Western tanagers belong to the cardinal family, as do grosbeaks and buntings. During breeding season, the male is the easiest to recognize. He has a red-orange face and head; yellow body; a black back, wings, and tail; and yellowish-white wing bars. In September the male's head turns olive and stays that way until the following March. The female is mostly yellow, with an olive back and head, black wings and tail, and white and yellow wing bars. She looks a bit like a female oriole. Both male and female western tanagers are about 7 inches long and have a pale, pointed bill.

Voice

The western tanager's song is similar to the robin's, or, as a friend once put it, "Like a robin with a sore throat." The song comes in short, hoarse bursts, sounding like a dry *prid-i-DIT*.

Breeding and nesting

The western tanager breeds from May through July in open coniferous and mixed deciduous-coniferous forests containing lodgepole pine, Douglas fir, and ponderosa pine. It breeds farther north than any of the other "neotropical" warblers (those living partly or year-round in Central or South America). Some western tanagers migrate as far as the Yukon, Northwest Territories, and southeastern Alaska, adding bright bursts of color to those northern climes.

Western tanager nests are usually a flimsy, shallow open cup of twigs, grasses, hair, or fine plant fibers. The birds build their nests in pine trees atop branches well out from the trunk.

The female lays three to five eggs, bluish-green with brown spots. She incubates the eggs for up to 13 days. The chicks are fed by both parents and fledge (leave the nest) 11 to 15 days after hatching.

Migration

Each fall western tanagers head south to the tropics. Some fly as far as Nicaragua and Costa Rica. Most winter in central Mexico, and some travel no farther than southern California.

On their wintering range, the birds occupy pine and pine-oak woodlands as well as low-canopied scrub forests, forest edges, and coffee plantations. They migrate alone or in groups of as many as 30.

Scientific name

Piranga is of obscure origins, while *ludoviciana* is from the New Latin *ludovician*, meaning "from Louisiana," likely referring to the location of early sightings by scientists.

Food

Western tanagers catch most of their food by "gleaning" (picking bugs from trees or off the ground) but are most visible while "hawking" (catching prey while in flight). They eat a wide range of insects, including wasps, ants, beetles, grasshoppers, and caterpillars. Spruce budworms are a favorite food. Western tanagers also consume fruits such as hawthorn apples, raspberries, elderberries, wild cherries, and serviceberries.

Range in Montana

During their spring and fall migrations, western tanagers can show up nearly anywhere in Montana. In summer, the birds are found west and south of Glendive and Glasgow. During a wet spring that produces a bumper crop of aphids on mountain ash, these beautiful, brightly colored birds flicker about near rivers and streams.

Dave Stalling was a longtime Montana resident who now lives in northern California.

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PARTING SHOT

STRANGE SWIMMERS Brook sticklebacks may be Montana's oddest aquatic animal. The 1½-inch-long fish, shown here navigating an irrigation ditch northeast of Billings, have several well-defined back spines and scaleless sides covered with a row of bony plates. They are related to, of all things, ocean-dwelling sea horses. See page 16 to learn how two anglers are trying to catch—with hook and line—these and other little known species across Montana. Photo by Nathan Cooper.

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